THE DENTAL PRACTITIONER

AND DENTAL RECORD

Including the official reports of the British Society of Periodontology, the British Society for the Study of Orthodontics, the European Orthodontic Society, the Liverpool and District Odontological Society, the North Staffordshire Society of Dental Surgeons, the Odonto-chirurgical Society of Scotland, and the Dental and Medical Society for the Study of Hypnosis

VOL. VII, No. 3 November, 1956

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THE DENTAL PRACTITIONER
AND DENTAL RECORD

Vol. VII, *No.* 3 — *November*, 1956

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SMITH, J. A. K. (1949), *Brit. dent. J.*, **86**, 271.

LEWIS, R. W. B. (1947), *The Jaws and Teeth*, 2nd ed., 471. London: Science Publishing Co.

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THE DENTAL PRACTITIONER AND DENTAL RECORD

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EDITORIAL

THE McNAIR REPORT*

THE report of the Committee on Recruitment to the Dental Profession (the McNair Committee) has now been published. It is an extremely important document and should be read by every member of the profession. The problem of recruitment to the dental profession is one that cannot be allowed to continue if we believe, as all do, that dental health is an essential part of general bodily health. Dentistry is an integral part of any service, whether private or public, which seeks to improve the health and efficiency of the community. A breakdown in this service would be a blot on the nation's health and it should be realized that if this problem is allowed to drift on as it has done there is every likelihood of a breakdown in ten years' time. The rigorous methods advocated by the Teviot Committee have never been implemented, and since then the position has become even more serious. It is hoped that the measures suggested in this report will be accepted by the Government and treated with the urgency which they deserve. The Committee has very ably examined all aspects of this situation and, summing up, declare:—

"The profession is failing to attract recruits in sufficient numbers because the public does not know the true import of dental health, and parents, schoolmasters, schoolmistresses, and young people know little of the possibilities of dentistry as a career. Many dentists at present are unwilling to advocate it, parents cannot afford it, and as a profession it is not as attractive as it could be. On the other hand, if appropriate steps are taken to remedy these things, there is every reason to suppose that young people will offer themselves in sufficient numbers to provide enough recruits for the profession."

The report makes it quite clear that the Committee believe that a fundamental cause for the shortage of recruits is the public ignorance of the significance of dental health. Among the other reasons discussed are the financial rewards under the National Health system, the general sense of financial insecurity in the later years of practice, together with the status of the dental surgeon and the fact that much of the publicity given has been of an adverse nature.

There is undoubtedly a crying need for more education of the public in matters of oral health and the important role that the dental surgeon plays in the nation's health. Although the major part of this report must be dealt with by the Government through the Ministry of Health, it is essential that the dental profession, by its knowledge and influence, should help to implement the findings of this report wherever possible. Only by means of education and improved public relations will the status of the profession be raised and the nation's oral health improved.

* *Report of the Committee on Recruitment to the Dental Profession*, Command 9861. London: H.M.S.O. 3s.

NITROUS OXIDE–OXYGEN ANÆSTHESIA USING A WALTON APPARATUS

By **JOHN E. SEEAR**, L.D.S. R.C.S. (Eng.)

INTRODUCTION

A GENERAL anæsthetic is one which is distributed to the entire body by the blood-stream producing unconsciousness as a result of its action on the brain.

Full anæsthesia not only implies a state of unconsciousness but also an absence of reflex response to painful stimuli.

Nitrous oxide is an inhalational anæsthetic and is absorbed by the blood-stream from the lungs. It is comparatively weak and cannot by itself produce deep surgical anæsthesia.

There are numerous theories as to the manner in which nitrous oxide exerts its action, the most popular one being that the nitrous oxide replaces the oxygen in the blood and thus reduces the activity of the brain cells. It is also absorbed by the lipoids in the cells causing some inhibition of their ability to utilize oxygen. No cell can live long without oxygen, nor in a state in which it cannot utilize any oxygen present, and this is therefore a most important point to bear in mind when administering nitrous oxide. It is because of this that an alteration of one or two per cent in the amount of oxygen inhaled by a patient during nitrous oxide–oxygen anæsthesia can so rapidly affect the degree of anæsthesia. Happily the higher functions of the brain are depressed before the "primitive" ones, and it is therefore possible to attain a state where the patient is unconscious and the pain centres are depressed, but the respiration centre is still relatively undepressed.

PREMEDICATION

The object of premedication is to reduce the metabolic rate of cells, thus diminishing their oxygen requirements. This is essential in many instances when nitrous oxide is the anæsthetic to be used, on account of its mildness. The more robust, energetic, or alcoholic a patient is, the more necessary is premedication.

In the dental surgery one's choice of drug for premedication is limited, as it is essential that the patient be fit to leave the surgery unaccompanied and within a short space of time, and often to drive a car. It is well to realize that a most important factor is a good sleep the night before, and the highly nervous patient should be given some help in the form of a drug. Ordinary aspirin is an excellent choice for this purpose and 15 gr. should be taken on retiring for the night, followed by 10 gr. in the morning and a further 5 gr. thirty minutes before the operation, which should be timed, in this instance, to take place approximately four hours after breakfast. Other choices for ensuring sleep are Seconal gr. 1½–3, Soneryl gr. 1½–3, Nembutal, and sodium amytal.

When it has not been possible to see a nervous patient beforehand to advise premedication, the use of methylpentynol (Oblivon) is recommended, some fifteen minutes beforehand.

In the case of the confirmed alcoholic an additional form of premedication which is essential, is not only to permit, but to recommend, alcohol the same day, even just before the anæsthetic. A further form of premedication which should never be overlooked is the actual "putting the patient at ease" as soon as he enters the surgery. Obviously there can be no hard-and-fast rules regarding this, as each of us has his own technique allied to his and the patient's personality. A universal one, however, is to avoid any loss of time in commencing the anæsthetic, and for all concerned to show obvious signs of efficiency. Remember that the voluble patient is only trying to delay matters because he is nervous. Such a patient will be only too glad for the job to be commenced, and finished, as soon as possible.

PERIODS OF ANÆSTHESIA

The First Period is the *Induction*, which lasts from the commencement of administration to full anæsthesia.

The Second Period is the *Maintenance* of full anæsthesia.

The Third Period is the *Recovery*, which is from the cessation of administration to full awareness.

STAGES OF ANÆSTHESIA

The First Stage is called *Analgesia*, when the patient is still conscious but slight pain cannot be felt.

The Second Stage is that of *Subconscious Excitement*, or "delirium", when reflexes are pronounced.

The Third Stage is *Surgical Anæsthesia*, which varies in depth from light to very deep.

With nitrous oxide it is not normally possible to obtain *deep* surgical anæsthesia.

SIGNS OF NITROUS OXIDE ANÆSTHESIA

Nitrous oxide can produce asphyxia as well as anæsthesia, thus it is most important that the signs of anæsthesia should be known and readily recognized.

Automatic Breathing.—As soon as the patient is in Stage III (surgical anæsthesia) breathing becomes automatic, completely regular, and is always nasal. Lack of sufficient oxygen would now cause the respiration rate to increase and then to become irregular.

Eyelid Reflex.—The eyelid reflex disappears, the eye is unable to focus, and subsequently starts to wander, later becoming fixed to one side, with pupil dilated. Pupil size should never be relied upon as a sign of anæsthesia, however, as dilatation *can be present* even in the early stages of induction.

Cyanosis.—Cyanosis occurs very soon after anæsthesia is established and gives the patient the characteristic change of colour. The anæmic patient may not show any visible colour change at all, even though gravely anoxic.

Muscular Relaxation.—As the *depth* of surgical anæsthesia increases so also does the relaxation of the muscles.

Jactitation.—This is not a sign of anæsthesia as such, but an obvious sign of oxygen lack, which should be remedied immediately by increasing the percentage of oxygen in the mixture.

PREPARATION OF PATIENT

Ensure that any really tight clothing is loosened and that the toilet is visited so that the bladder may be emptied.

The patient should be seated with knees bent and feet flat on the foot-rest, or, one foot each side of the foot-rest, if "long in the leg".

The patient's head should be firmly against the rest in such a position that it is comfortable and permits of a clear airway. *Dentures*, if any, must be removed.

The hands should be clasped together, fingers interlocked, and resting on the lap.

The bib should now be put on, then the mouth examined by both the surgeon and the anæsthetist, who should note the position of the teeth to be removed and the presence of any crowns, bridges, unhealed sockets, loose teeth, etc., that might be damaged if a Mason's type gag has subsequently to be used.

Move all equipment as far as practicable from the patient in case of undue movement during the Second Stage (subconscious excitement) and recovery.

WALTON APPARATUS, MODEL III

This apparatus (*Fig.* 1), specifically designed for dental anæsthesia, has three main controls: a foot lever at the base, which regulates the pressure of the flow of the gases; a hand-controlled knob in the centre of the panel, which mixes the gases in various proportions; and an emergency button, which releases a large flow of oxygen irrespective of the settings of the previous two controls.

A large dial shows the percentages of nitrous oxide and air and nitrous oxide and oxygen, and also the flow pressure (*Fig.* 2). This latter seems to be valueless in practice as the pressure is regulated entirely by sound, and in any case the position of the foot lever is an equally useful guide.

A gauge gives the pressure of oxygen present in the cylinder in use, and another the pressure

of nitrous oxide. It should be realized that the nitrous oxide gauge will show a reasonable pressure until almost the last moment, as the substance is in a liquid state in the cylinder, and pressure therefore remains almost constant.

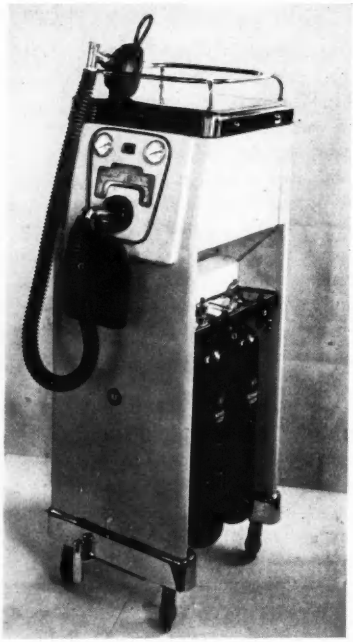

Fig. 1.—Walton III, with No. 4 facepiece and rebreathing bag.

Thus this gauge cannot be relied upon as an indication of the amount of gas in the cylinder.

By moving the foot lever across, the amount of pressure at which the gases escape is increased, and the ideal position to commence induction, generally speaking, is one which enables the patient to inspire the gases with the minimum effort, yet permits of no flow during expiration, i.e., the pressure should be such that "intermittent flow" only is occurring with the minimum inspiratory effort. This position for the foot lever will vary according to the pressures in the cylinders and from one apparatus to another, and must therefore be adjusted for and during each administration.

There are two nitrous oxide cylinders and two oxygen cylinders. Only one of each should be switched on and the keys then placed on the spare cylinders ready if required. Mark cylinders "In Use" and "Full", and be certain that those marked "Full" are in fact so. (*Fig.* 3.)

Fig. 2.—Close up view of dials on Walton III.

Procedure.—Operator positions the prop.

Anæsthetist sets mixture control at 100 per cent nitrous oxide (*Fig.* 4), puts nose-piece in position, ensuring that it adapts closely and the expiratory valve is not under any pressure from the adjustable spring attached to it. The nose-piece is held in position either with a harness or by a "slider" which fits over the tubes and is slid along to secure them closely around the patient's head. The foot lever is now moved across until the gases can be heard flowing and then moved back slightly so that intermittent flow only is in operation (*Fig* 5). If it has not been possible to secure an airtight fit of the nose-piece, it is essential to adjust the foot control so that a slight positive pressure of flow occurs. Unless this is done the patient will inspire a considerable amount of air, which will not only make the induction lengthy, but maintenance almost impossible.

As the last "sense" to go is that of hearing, it is most important for complete silence from now on, the anæsthetist only speaking to the patient, and the operator keeping well away from the chair. Instruct the patient to breathe *out* through the nose, and support the lower

jaw to ensure a clear airway. As soon as automatic breathing has commenced slightly increase the pressure of flow with the foot lever and turn the small knob on the nose-piece

Fig. 3.—Nitrous oxide cylinders marked with clip-on tabs. "In Use" cylinder is switched on, and "Full" cylinder has key in position ready for use if required.

to put the expiratory valve under slight pressure. Turn the mixture control knob to about 6 per cent oxygen, wait until the patient has taken a few breaths and then alter this percentage as found necessary, i.e., more if any cyanosis, and less if anæsthesia is light. (*Fig.* 6.)

The operator should now place a mouth-pack in position ensuring the tongue is not pushed back. When the anæsthetist is confident that the anæsthetic is smooth and level he should tell the operator to commence and *not before*, and during the operation he must continue to support the mandible.

Occasionally a patient will commence mouth-breathing early on in the induction period, and if he does not co-operate after being told to breathe out through the nose, the mouth cover must be placed in position. It should be noted here that gases can only pass into the mouth cover when the swivel attachment allows the tube to the mouth cover to lie parallel alongside the other tubes (*Fig.* 7).

Fig. 4.—Apparatus switched on, controls set for "Intermittent flow" on 100 per cent nitrous oxide. Rebreather bag switched out.

Fig. 5.—Foot lever being adjusted for "intermittent flow" and mandible being supported.

Dropping the mouth cover causes the swivel piece to fall opposite to this position and cuts off the flow to the mouth-piece (*Fig.* 8).

The percentage of nitrous oxide to oxygen is only as stated on the control panel when the intermittent-flow technique is used. If the flow is under pressure, or, if the rebreathing bag is switched into the circuit the mixture is not as recorded on the dial. This is, however, of no great importance as no anæsthetic can be administered "from a dial". In the event of a cylinder of nitrous oxide becoming exhausted during an administration, it is only necessary to turn the key on the reserve cylinder to bring this into the circuit. On some apparatus this will allow the gas to flow into the empty cylinder, unless the yokes into which the cylinders fit have been fitted with non-return ball-valves. If a full cylinder has to be

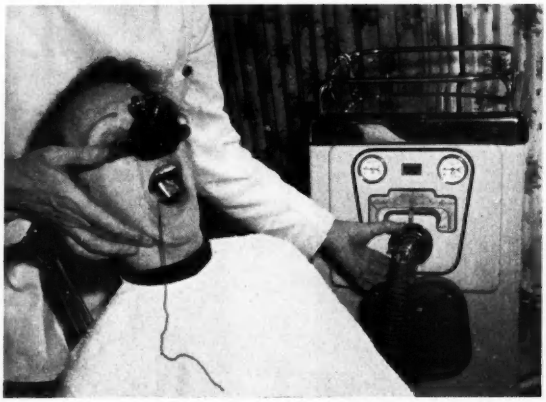

Fig. 6.—Apparatus being set for maintenance period.

Fig. 7.—Mouth cover in position. Note tube held so that valve is up, and gases can flow to mouth cover.

Fig. 8.—Mouth cover dropped. Note valve is down, switching off gases to mouth cover. Jaw is supported by anæsthetist.

switched in during an administration, it will be necessary to adjust the foot lever to a lower pressure to maintain the original pressure.

Recovery.—Immediately the operation is finished switch off the anæsthetic by moving the foot lever to give minimum pressure,

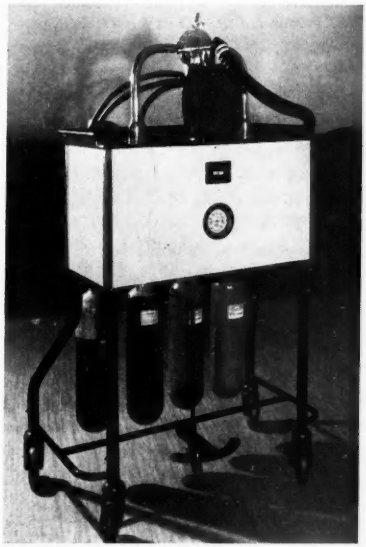

Fig. 9.—Walton Model II.

remove nose-piece and mouth-pack, and support the patient's head in a forward position to allow blood and saliva to drain away into a bowl held in a suitable position by the nurse. Do not forcibly wake the patient; allow this to happen naturally. As soon as the patient is fully awake and comfortable after a mouth rinse, make him rest back and take a few deep breaths to clear the lungs of any remaining anæsthetic.

Notes.—

Jactitation shows insufficient oxygen.

Increased rate of respiration shows insufficient oxygen.

Laryngeal spasm: Cease anæsthetic and wait for spasm to pass.

Sudden cessation of respiration: Usually due to tongue falling back. Remove mouth-pack and draw tongue forward with tongue forceps, or by finger pressure behind tongue.

Check apparatus before commencing the anæsthetic, ensuring that the gases flow readily, the spare cylinders are full and that no leaks are present.

If a spare cylinder has had to be switched in during the anæsthetic, remove the empty one

Fig. 10.—Walton Model IV.

immediately the operation is over, replace it with a full one, and mark it "Full".

When many teeth have been removed at one sitting, much blood and mucus will be present in the mouth. This should periodically be removed and the sponge or gauze replaced by a fresh one.

If a patient commences to vomit during an administration, slightly lighten the anæsthetic to ensure a good cough reflex, hold the head well forward, and a bowl in position under the chin. When vomiting has finished, wipe out the mouth, insert a fresh pack, deepen the anæsthetic again and continue the operation.

Non-return ball-valves can easily be put into the cylinder yokes if not already fitted.

Use of the Rebreathing Bag.—If the rebreathing bag is cut into the circuit by means of the small lever above it, the effect will be

of increasing the CO_2 intake, as expired CO_2 will enter the bag and then be inspired with the N_2O and oxygen. This can be useful if the patient has been taking unusually fast deep breaths during induction, which causes a lowering of the CO_2 content of the alveolar air, and produces a state of apnœa.

The Model II (*Fig.* 9) is used virtually in the same manner as the Model III.

The foot lever controls the pressure of flow, the small top lever is the mixture control, with the percentages marked immediately below it, and the emergency oxygen button is situated on the left side of the flat table top. There is no nitrous oxide pressure gauge, but instead an On–Off indicator. When pressure is very low this fluctuates up and down with a readily audible noise, and is therefore extremely useful.

WALTON MODEL IV

This is the latest model to be produced, and again is used in exactly the same way as the previous models (*Fig.* 10). The foot lever has been replaced by a small knob on top of the apparatus and pressure is marked here in mm. of mercury. The mixture control allows only for full nitrous oxide and mixtures of nitrous oxide and oxygen, i.e., there is no arrangement for nitrous oxide and air mixture. Emergency oxygen is supplied by pressing a button situated on top of the apparatus immediately behind the pressure control knob. A gauge gives the pressure of oxygen in the cylinder in use and is fitted on the yoke between the two oxygen cylinders. An On–Off indicator is similarly placed between the nitrous oxide cylinders. This is a very compact little apparatus with the controls at a very sensible height, and the "percentage" dial clearly marked. Thanks to the courtesy of the British Oxygen Company I have been able to use this latest model in my own surgeries, and have found it both simple and efficient.

During discussions with representatives of the manufacturers it was surprising to hear that very frequently dental surgeons query the accuracy of the percentages of the gases as recorded on the dials of various apparatus by stating "This must be wrong because the patient was blue at 5 per cent oxygen". The obvious answer is to give more oxygen! Every patient is different and there can be no rule-of-thumb method for administering an anæsthetic. Before we blame an apparatus let us make sure we understand it and know what we are doing. The old type of anæsthetic known often as "get 'em black and snatch", should have disappeared many years ago, but unfortunately many dental surgeons to-day still have to rely on virtually unskilled administrators for their anæsthetics. Thus the operator is faced with a patient either still conscious, or else dangerously cyanosed, with the result that his work is rendered difficult, and at times almost impossible. It is in the hope of helping these colleagues, and at the request of a number of them, that this article has been written.

Considérations sur le Rôle des Facteurs humoraux et trophiques dans la Constitution des Parodontoses

A belief is stated that periodontal diseases are nearly always related to systemic anomalies.

The lesion is considered to be an osseous change of a rarifying nature. The author states that bone may be decalcified either by osteoporosis or osteomalacia: osteoporosis being associated with an absence, insufficiency or poor quality of the protein matrix, and osteomalacia with a lack of adequate fixation of calcium and phosphorus. These two conditions are collectively called bone atrophy by the author. Endocrine disturbances, particularly the sex hormones, digestive troubles, and neuropsychic factors are considered to be aetiological factors, the latter being responsible in some cases for the endocrine and the hepatic-digestive disturbances.

No original work by the author is produced to substantiate his beliefs, although he quotes freely from authorities written in the French language.—Friez, P. (1956), *Parodentologie*, **10**, 74.

THUMB- AND FINGER-SUCKING*

By DONALD MUNRO, L.D.S. R.F.P.S. (Glasgow)
Dental School, University of St. Andrews

THERE is a Latin proverb which reads—"Men do more things through habit than through reason".

For the purpose of our discussion a habit may be defined as any definite mode of acting which does not belong to man's hereditary equipment. It is individually acquired. So great can be the force of habit that—

> Small habits, well pursued betimes
> May reach the dignity of crimes.

The habits which are recognized in children have been tabulated as follows by Olson (1929).

1. Oral (sucking thumb, sucking fingers, biting nails, protruding tongue).
2. Nasal (picking nose, scratching nose, wrinkling nose).
3. Hirsutal (pulling and twisting hair, scratching head).
4. Irritational (scratching body).
5. Manual (picking fingers, writhing hands, clenching fists).
6. Ocular (rubbing eyes, blinking eyelids, winking).
7. Aural (pulling ear, picking ear).
8. Genital (manipulating genitalia, thigh rubbing).
9. Facial (grimacing, twitching muscles).

Olson (1929) also studied and recorded the habits of 459 children. The result of this work in the table which follows shows the great frequency of oral habits.

	Frequency of Habit Action
Oral habits	247
Nasal habits	127
Hirsutal habits	105
Ocular habits	69
Aural habits	48
Genital manipulations	17
Habit actions exhibited by 459 children	613

This means that 40 per cent of the habits recognized in this group of children were associated with the oral cavity. Habits associated with the mouth are many and varied. To mention only a few, we have tongue and lip habits, nail biting, and the insertion of foreign objects into the mouth. A very large percentage of oral habits are those of sucking the thumb or fingers. Nord (1955) states that at least 50 per cent of the cases attending his clinic for treatment of malocclusion are thumb-suckers. In a paper read to this Society last year dealing with a survey of 1000 schoolchildren, Gardiner (1956) stated that 27·2 per cent had a history of sucking the thumb or fingers. Lewis (1930) records a study of 170 children, 30 or approximately 18 per cent of whom presented a history of thumb-sucking. Sillman (1951) found 20 thumb-suckers in a group of 60 children. It has been established by different workers that the habit of thumb- and finger-sucking is not infrequent and that in many cases it is, at least, a contributing factor towards the production of malocclusion.

This habit is known to start at varying ages in children and in response to different factors. It is known that before and at birth the hands are in fairly close proximity to the mouth and Salzmann (1943) suggests that when the fœtus shows increased muscular activity, the thumb may find its way into the mouth. In Lewis's (1930) paper we find that 9 out of 30 cases commenced the habit of thumb-sucking at birth, 16 by 2 months, 20 by 3 months, 23 by 6 months, and 28 by 12 months. The remaining 2 commenced the habit, 1 at 18 months and the other at 2 years. From the above figures it will be seen that the largest group commenced the habit at birth or soon afterwards and that the majority formed the habit during the nursing period.

From the moment of birth we find the infant when not sleeping is ceaselessly moving the arms, legs, and head, and indeed the whole body. At the same time there is a feeling of hunger and a desire for food. If during this

* Read at the meeting of the British Society for the Study of Orthodontics, held at Newcastle upon Tyne on Friday, May 11, 1956.

time the so-called random movements bring the hand to the vicinity of the mouth the infant may commence to suck it. Continue to stimulate him in this way and the movement of the hand towards the mouth becomes more frequent and the child becomes more efficient in selecting a part of the hand which will resemble the nipple or teat. Stimulus can be produced by improper feeding, caused by faults in quality, quantity, and feeding conditions. It may be produced by a feeling of insecurity, due to lack of attention, or fear. In one case examined by Watson and Rayner (1920) they found it much harder to frighten a child when he had his thumb in his mouth.

In a few cases the desire to suck the thumb or fingers may commence at the time of weaning, especially if this process should be carried out suddenly. It has been suggested that the infant requires a certain sucking time, about 2 in every 24 hours, and when this is suddenly reduced he may make up the required sucking time by inserting the thumb or finger into the mouth.

Rachel Sclare (1949) states that "many nervous habits would appear to have a genetic origin. Although the actual habit may not be transmitted by the parent, the child may inherit the nervous and psychological tendencies which are responsible for the development of the habit". Most of us have seen children sucking their thumbs in a manner similar to that previously performed by a parent.

Imitation of an older member of the family or of a playmate may be responsible for some children commencing to suck their thumbs.

No matter what the cause, the formation of the simplest habit is an enormously complicated affair, forming pathways in the brain by which certain outgoing currents always tend to escape. In support of this we observe that children develop a recognizable pattern of thumb-sucking. The habit is performed each time in similar circumstances and in a similar manner. As time proceeds the circumstances are slightly modified. After the first year of life we find the habit is stimulated by hunger, tiredness, jealousy, unhappiness, idleness, and nervous tension. As time proceeds the habit becomes associated with the other habits of the child and may be performed when the hands are idle, for example, when reading and also at bed-time. Because of social customs and the shame which the child is made to feel, the habit in older children is carried out privately or in secret, and in the majority of cases at bed-time. The manner of performance seems to remain more constant. The same digits are used each time the child sucks. It is observed that when the thumb is used it is in most cases always the same thumb although there is a small percentage of cases where either thumb may be used. We never find the child substituting another digit if it is not possible to suck the usual one. The thumb is usually inserted in the mouth with the palmar surface towards the palate. It may be inserted to the right, centre or left of the mouth. It may be inserted until any point from first to second knuckle makes contact with the tips of the lower incisors. The same amount of thumb is always inserted in the same position. When fingers are inserted in the mouth we find an even greater variety of methods. When only one finger is used it is most often the index finger and it is usually inserted into the mouth bent at the second knuckle, or with the palmar surface towards the tongue. When two fingers are used they are usually the index and the middle fingers and may be inserted with either the palmar surface towards the palate or towards the tongue. The child very seldom forms the habit of sucking the two remaining digits. On occasions it has been observed that the thumb and index finger are inserted in the mouth in a pincer fashion. The intensity or vigour of the habit is also variable from individual to individual, ranging from the gentle insertion of the digit into the mouth and a light occasional sucking pressure to the insertion of the thumb or fingers many times a day and very vigorous sucking.

We observe in some cases of thumb- or finger-sucking the presence of a second habit. This may be practised at the same time as the sucking habit either by the remaining fingers or by the fingers of the free hand.

The habits performed in this way include any of the habits associated with the nose,

ears, hands, clothing, or hair. Habits of the tongue and lips have been observed in some cases. These habits are practised at a separate time and are secondary to the sucking habit.

Gardiner (1956) reports that only 39 out of 272 thumb-suckers showed malocclusion which could definitely be attributed to the habit. Lewis (1930) observed a typical malocclusion in 24 out of 30 thumb-suckers. "The fact that some children who suck their thumb do not have a malocclusion depends on the sucking technique and the duration and intensity of the habit as well as whether or not the children in question have well-developed, strongly built jaw bones, which are capable of withstanding the abnormal pressures brought to bear upon them during the thumb-sucking process." (Lawes, 1950.) He also found that "these malformations tend to correct themselves if the habit is broken by the time the child is five years of age, but do not tend to correct themselves if the habit persists". Sillman (1951) states that "during the first four years, vigorous thumb-sucking may cause a displacement of the oral structures. However, this is spontaneously corrected after the activity has been relinquished". This fact, he continues to state, "is proved by the evidence as seen in serial records starting at birth".

The thumb- or finger-sucking habit may produce in the deciduous dentition, depending on the way in which the finger is sucked, a malocclusion which is easily recognized as having been caused by the finger. So typical is this malocclusion that in most cases one is not only able to recognize it on the first visit but also to state which thumb the child is sucking. The nature of the malocclusion is an anterior open bite with some labioclination of the upper incisors and retroclination of the lower incisors. In some cases, the anterior open bite permits tongue-thrusting during speech and deglutition. When this tongue-thrusting habit is present it will persist after the thumb-sucking has stopped. This may continue during the period of the changing of the dentition and thereby prevent the development of a normal permanent dentition.

The most serious cases of thumb-sucking are those cases where intensely vigorous sucking is continued until after eruption of the permanent incisors. Such cases show abnormalities in the dental arches and alveolar support, and probably changes in the shape of the palate and the soft-tissue pattern.

Changes in the Dental Arches.—The effects of thumb- or finger-sucking upon the developing dental arches vary with the intensity of sucking and manner of insertion of the digit in the mouth. When the digit is inserted in the mouth it acts like a powerful lever carrying the weight of the hand and part of the weight of the arm. This lever presses the maxillary incisors labially and may also press the mandibular incisors lingually. When the habit is practised with the arm held close to the body and the thumb inserted almost vertically into the centre of the mouth till the first knuckle contacts the tips of the lower incisors, the upper incisors are pressed forward bodily. Their labial axial inclination is either normal or less than normal. When more of the thumb is inserted it is usually held more horizontally, and this may cause the upper incisors to be more labially inclined than normal or produce either a depression of the incisors or elongation of the posterior teeth. In such cases we find faults in the overbite and overjet. This sucking habit may also cause contraction of the maxillary dental arch, particularly in the canine and premolar region. This is caused by the abnormal contraction of the corner of the mouth against the sides of the dental arches. In some cases a unilateral or bilateral cross-bite may occur. The sucking of the thumb to right or left of the mouth produces malposition of the teeth making contact with the thumb. This may also produce what is called a unilateral mesiocclusion of the maxillary arch.

Changes in the Alveolar Bone.—Following mass extraction of the deciduous teeth, cases have been observed where thumb- or finger-sucking has produced alteration in the shape of the alveolar ridge.

Changes in the Palate.—Swinehart (1938) drew attention to another abnormal force exerted in thumb-sucking, that is, abnormal

muscular pressure of the digit against the palate. We are all familiar with the plasticity of bone. We know that external forces used by certain races during the early developmental period change the shape of the feet or the head. We know that the rise of intracranial pressure in hydrocephalus in infants produces enlargement of the cranium.

thumb pressure (*Fig.* 3). The site of pressure in such cases is in the anterior half of the palate. We have not recognized any palatal distortion when the thumb is inserted almost horizontally into the mouth. In such cases there is a greater spread of the pressure because the thumb contacts almost the whole of the palate.

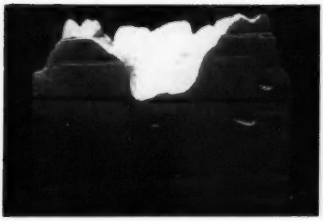

Fig. 1.

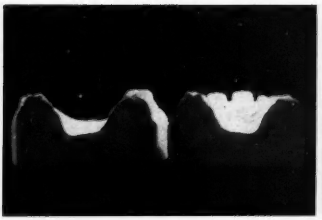

Fig. 2.

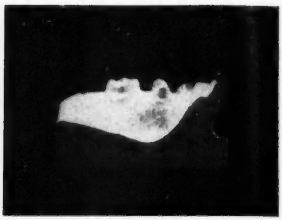

Fig. 3.

Fig. 1.—Abnormalities in the form of the palate associated with sucking the index and middle fingers of the right hand.

Fig. 2.—Changes in shape of palate associated with sucking right thumb. Thumb is inserted on right side of mouth and pressed toward the left of palate.

Fig. 3.—Changes in shape of palate associated with thumb-sucking when thumb is inserted almost vertically into the mouth.

Keith's law states that osteoblasts at all times build or unbuild according to the stresses to which they are subjected.

It is therefore natural to assume that the force of the thumb or fingers which commences in early infancy and continues through the formative period of childhood may be responsible for some alteration in the form of the palate. In many cases under observation we have observed changes in the form of the palate which could be attributed to the pressure of the digit.

In cases where the index and middle fingers were inserted in the mouth with the palmar surface upwards, it has been observed that the form of the palate in the region of contact followed the outline of the tips of the two fingers (*Fig.* 1).

In many other cases where the thumbs were inserted on the right- or left-hand side of the mouth alterations in the form of the palate were observed (*Fig.* 2).

In many cases where the thumb is inserted almost vertically into the mouth a marked palatal distortion can be seen at the site of

Changes in the Soft Tissue.—In a few cases we also observe changes in the soft-tissue pattern which appear to be associated with the sucking habit. The faults are usually in the lower lip and may be in the nature of a curling over of the lip or falling inward of the lip. In many cases we have an accentuation of the labial mental depression.

TREATMENT

Because of the attitude of psychologists and pædiatricians little attention is paid to early treatment or prevention of this habit. The pædiatrician considers that "in infancy thumb-sucking is a normal activity that requires no interference. It usually disappears during the second year when the infant acquires new ways of obtaining pleasure and satisfaction". (Veeder, 1952.) It is now considered by many that the practice of this habit gives no cause for concern unless the child continues with the habit until he is four or five years of age. It is likely that for some time the child has been the recipient of much advice, many scoldings, some nagging, and probably some

persuasion. All this may only cause the entrenching of the habit more deeply in the child and produce an abnormal nervous tension. This, it is felt, should be avoided and a little more attention paid to the prevention of the habit. In this way a large number of cases caused by faulty feeding conditions can be eliminated. When persistent thumb- or finger-suckers present themselves for orthodontic treatment it is after the presence of marked malocclusion or of facial deformity has been recognized by the parent. Attention has been drawn to many of the factors which stimulate the sucking habit, and to the varying degrees of intensity and method of practising the habit. No two cases although they may appear similar are actually alike. Before planning treatment it is essential that a very detailed case history should be taken. Details of the child's family background and information of the inception of the habit are essential. Information regarding previous attempts to stop the habit should be obtained. I find it is usually desirable to ask the parent politely to take no further active part in the treatment. A man-to-man talk with the child is then desirable. On this occasion we show the child, with the aid of models, the damage to his dentition. We also gently boost his morale and then appeal to his will-power. Nothing spectacular is demanded and the child may be given several months to stop the habit. Many children return for their next appointment having stopped the habit. Others do not find it so easy. Still no pressure should be applied. Pressure may force the child to commence some other habit which though not so disfiguring may from a social angle be less desirable. We have known cases commence habits such as stuttering, genital manipulation, sleeplessness, and bed-wetting following an unwise amount of pressure applied by well-meaning parents. Appliances have sometimes to be inserted into the mouth to remind the child that thumb-sucking is an undesirable habit.

One of our cases attending for treatment is a thirteen-year-old girl. Her mother had tried all the known "cures" without success. She continued to suck her thumb at school, when reading, when watching television, and at bed-time. After the insertion of an appliance it took over six months to stop the habit.

SUMMARY

1. Persistent thumb-sucking is found frequently among children and may produce dental and facial deformities.

2. There are many factors which may be responsible for the formation of the habit.

3. When the habit is stopped by four years of age and no secondary habits have developed there should be no malocclusion of the permanent dentition.

4. The intensity or vigour of the habit varies from individual to individual.

5. There are many ways in which this habit may be practised.

6. Abnormalities in the dental arches, alveolar bone, palate, and soft tissues can be attributed to the habit.

7. Attempts should be made by the pædiatrician and family doctor to prevent this habit.

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DISCUSSION

Opening the discussion, *Mr. Leech* said he wished to thank Mr. Munro for his interesting paper, which was mainly bibliographical. Unfortunately as he had received it at a rather late hour his appreciation of the paper was limited to what he had been able to assimilate from the spoken word, and for that reason he apologized if his remarks appeared to take the form of a subsidiary paper. He would have liked to have seen some more statistics shown by Mr. Munro, and in the absence of them he proposed to produce some of his own. His experience was of two hundred children chosen at random from the Upper Respiratory Research Clinic at the Victoria

Hospital for Children, Tite Street, Chelsea. A clinical examination of those children was supported by lateral and postero-anterior radiographs and a history taken from the mother. The average age of the children was 7, the eldest being 12 and the youngest 3. Males, 101; females, 99.

Mr. Leech then showed a series of slides of a statistical nature and made the following observations:—

Of the 200 cases, there were 35 who sucked their thumbs or fingers at some time or another. Up to the age of 2 years all the 35 sucked the thumb; up to the age of 4 there were 30; up to the age of 6 there were 23, and then the numbers dropped quite considerably. Up to the age of 8 there were 8 and up to 10 and onwards there were 3. Most of the children started thumb-sucking at birth and most of the thumb-sucking ceased about the age of 6 or 7. Six of the children sucked their thumbs at night only, and 1 or 2 started later than at birth. There was no relationship to feeding; in those starting later than at birth the sucking was often preceded by a prolonged illness or some mental upset such as another child coming into the family.

A history was taken of the feeding of the thumb-suckers. There were 5 who were fed by bottle only; 6 who were breast-fed up to 3 months, and 8 who were breast-fed up to 6 months, but he had been unable to find any correlation between thumb-sucking and breast-feeding or bottle-feeding. On the other hand it was not easy at times to get a history from the mother of exact feeding habits.

The 200 cases were divided up into skeletal patterns: skeletal I being the normal dental base relationship, skeletal II being the post-normal and skeletal III being the pre-normal. There actually were less skeletal II's among the thumb-suckers (about 32 per cent) than there were among the non-thumb-suckers (about 40 per cent), i.e., a post-normal apical base relationship was more common amongst the non-thumb-suckers.

Nineteen of the 35 had an increased overjet, but 11 of these were on skeletal II bases anyway. Seven persistent thumb-suckers had perfectly normal occlusion. Sixteen of the 35 had a reduced overbite or actual open bite and most of these had an associated anterior tongue thrust.

Mr. Leech said his general conclusions were that thumb-sucking was undoubtedly a factor concerned in the creation of malocclusion but a factor which had been emphasized out of all proportion to all other factors. He personally would place it very low down in the aetiological scale. It seemed to have little effect, if any, on the growth of the jaws, the deformities being limited to the alveolar structures, of which an anterior open bite seemed to be the most common. If the habit was given up before the permanent dentition erupted then it seemed to have very little effect; if it persisted after the eruption of the permanent dentition, cessation of the habit would in most cases result in a natural disappearance of the deformity, provided that the soft-tissue behaviour was normal, but appliance therapy as described by Mr. Munro might be needed.

The role of thumb-sucking and tongue-thrusting in the aetiology of malocclusion was a confusing one: it seemed that the one might be a principal factor whilst the other was secondary. His own view was that the thumb-sucking might be the prime factor with the tongue moving into the open bite thus created.

In many children who were not thumb-suckers there frequently occurred, after loss of deciduous incisors and before the eruption of the permanent incisors, a gap into which the tongue moved. Conversely the tongue thrust might be the prime factor causing the malocclusion, and the thumb-sucking the secondary factor in enhancing it. Most abnormalities previously attributed to thumb-sucking were really due to an inherent abnormality of the skeletal pattern and/or of the surrounding soft-tissue behaviour.

As regards the treatment of the persistent thumb-sucker, his own view was that it should be directed mainly towards the discovering of the emotional factor concerned, and it should be dealt with by tact and kindness rather than by punitive measures, the latter nearly always producing the opposite result. In most cases treatment was not necessary, except in the really persistent thumb-suckers where a bad malocclusion was being produced.

Mr. Walpole Day said he would have liked to have heard a few more remarks about the cause of thumb-sucking. When one looked round there appeared to be more thumb-sucking in the so-called civilized races, and when one sought an explanation it appeared that thumb-sucking habits were associated with boredom and that they probably started through hunger, and it was interesting to speculate on whether there was something wrong with the method of the feeding of the very young child. One knew the horror with which a nurse would greet any suggestion of extra feeds and how she would say "No more food till ten o'clock", which makes one wonder whether four-hourly feeding was entirely a good thing. A hungry child with a small stomach might need more frequent feeds, and it was interesting to note that in America now they were breaking away from the four-hourly feeding system and feeding the child more often and more when it was wanted.

Mr. R. A. Campbell expressed his appreciation of the paper Mr. Munro had given and the subsidiary paper by Mr. Leech. One factor on which he would like to hear Mr. Munro expound a little further was that of the co-operation of the general practitioner and the pædiatrician. At the present time the tendency was to treat the subject of thumb-sucking as being relatively unimportant, and it seemed that such an attitude on the part of the medical profession would have to be overcome. Even more important was the attitude of the parent and whether it was possible to present them with some rationale for prevention, and that was a point on which he would like to hear a good deal more.

There was one thing that he had noticed with great interest, not only in his own family but among his friends in Australia, where he came from, and that was that over the years there had been developed a method of putting the child down between feeds for sleeping purposes, and so on. That method, which had not been invented to prevent thumb-sucking, was in fact a very good deterrent in the early stages when the habit normally commenced, and not being a mother himself he could only define it as swaddling the child. The child was in fact completely wrapped, with the hands more or less at the sides, and that in itself appeared to be one of the greatest deterrents it was possible to devise.

Mr. Breakspear said he had noticed that palatal abnormalities could occur without any thumb-sucking at all and he hoped Mr. Munro would follow up his investigation by studying a number of cases of non-thumb-suckers to see whether such abnormalities were found more among one group than the other.

Mr. Hellier said Mr. Munro had quoted somebody as saying that the abnormality as a result of the thumb-sucking might be very much less if the bony structure was strong enough to resist it, but his own personal feeling was that the explanation of that would be that the lack of abnormality, or the good position of the teeth, would arise more from the countering influence of the muscles which resisted the action of the thumb, and not necessarily the strength of the bone. He continued by saying that he had seen cases of thumb-suckers in skeletal Class III where the habit had been beneficial and patients had reduced an abnormality quite unconsciously, by bringing the erupting incisors into labial occlusion.

Mr. Kettle said he felt grateful to Mr. Munro for giving such a delightful series of pictures and putting the problem in a very orderly manner. He wondered whether anyone had ever heard of a real objection to the use of the dummy or comforter which could be rejected quite simply in the first three or four years of life.

A point had been raised in the discussion about such habits in what might be called the "uncivilized races". He seemed to remember reading of an African tribe where suckling went on until the age of nine or ten, and it was interesting to speculate on whether that caused a gross malocclusion!

Mr. Gray thanked Mr. Munro for putting in their possession a full survey of the whole problem of thumb-sucking and its attendant troubles. The correction of those habits in the young child would very often automatically put the condition right, and the point about not scolding the child was terribly important. The child should never be punished for the habit but if he or she could be reasoned with the habit could frequently be checked. However, when it became a matter of orthodontic treatment and the molars had erupted it was a very simple matter to fit a fixed appliance, and almost overnight the habit would stop in 99 per cent of the cases.

Mr. Littlefield said that the subject of thumb-sucking was one which had interested him for some years. With regard to the aetiology of thumb-sucking, there seemed to be an inherited predisposition but that was not the only cause. During early years of life the main cause seemed to be, not so much a lack of food, as a lack of sucking activity on the part of the child. Then, in later years, his experience was that thumb-sucking generally resulted from a lack of harmony between the child on the one hand and his environment on the other. Either the child might be at fault, or the environment, or both.

With regard to the misunderstanding with the medical profession about thumb-sucking that had been aired in that part of the country quite recently at a brains trust. His own view was that the misunderstanding had arisen as a result of the old type of treatment of thumb-sucking, where the habit was forcefully ceased by orthodontists and where complications, such as stuttering, were sometimes produced. It was not so much that the medical profession regarded thumb-sucking as incapable of producing harmful effects but that they disapproved of its forceful cessation. Their view was that the forceful cessation of the habit might produce complications which, in themselves, were often more harmful than the original thumb-sucking. He believed that, if orthodontists were to explain to the medical profession their modern methods of treatment of thumb-sucking by logical approaches to the patient and the parent, the misunderstanding would no longer obtain.

Professor G. E. M. Hallett said that he wished to support what Mr. Littlefield had said because for some reason thumb-sucking seemed to be a "seconds out of the ring" topic. No one had mentioned that a child sucking his or her thumb over a prolonged period was not a very dignified sight and he would have been very disturbed if one of his own children had indulged in such a habit beyond the age of four; fortunately he had not had any trouble of that nature at all. But it was not a dignified act and later on if children were allowed, or even encouraged, to continue with thumb-sucking because of the alternative risk of inducing some other psychological disturbance as a result from interfering with the habit there was still the fact that at school or elsewhere they would be recognized as thumb-suckers by their fellow school mates and sheer self-consciousness bring its own undesirable psychological aftermath. He had seen many malocclusions which seemed to be directly attributable to the way in which fingers and thumbs were sucked, and, though in company with everyone else present he strongly deprecated the "barbed-wire" and arm binding techniques which were physically restrictive, he could not see any reason for not attempting, on a very light and friendly basis, to get rid of the habit. The dentist could establish the right sort of "rapport" for this more easily than the parent and in most cases the child was only too anxious himself to stop. By treating the whole thing in a matter-of-fact way, by sometimes giving another appliance to suck in substitution, he found that in most cases the habit was broken quite easily though eventually one was left with a very few intractable ones. The children were the happier for it and the orthodontic treatment, if necessary, was much simpler.

Mr. H. Richards asked whether Mr. Munro had noted any cases in which the malformation could be attributed solely to the thumb-sucking habit.

Whilst he had no statistics, his impression was that the thumb caused trouble largely in the type of case which was an orthodontic problem anyway.

The Chairman said that there were obviously two basic schools of thought on the thumb-sucking question: there was the school of thought which considered it to be the root of all evil and should be stopped, if not at all costs at least at fairly considerable cost, and there was the school of thought which considered that thumb-sucking, except in rare cases, produced gross dental abnormalities only where there were other factors present. He considered that the Class I, Division 1 malocclusion was there from the beginning, and that therefore the latter was the school to which he belonged. There was another way of looking at the problem, which was that in the Class II, Division 1 cases which came along at the age of about 11 or 12 when they were asked about their thumb-sucking habits it was astonishing how few of them had sucked their thumbs beyond the age of from 4 to 5 years. In the Class II, Division 1 category in a very high percentage of the cases thumb-sucking was not an aetiological factor but when one took the cases which had not sucked their thumbs it would be found that they had incompetent lips, or a markedly atypical swallowing action, which was tending to push the incisors, and if one then added the factor of thumb-sucking which also pushed them forward that then determined the case.

He was surprised that nobody had mentioned the use of an Andresen appliance, because not only did it control thumb-sucking in a way which was completely innocuous

but also it might be made to adjust the relationship of the incisors, which might be made worse by the thumb-sucking.

Mr. D. Munro, in reply, thanked all those who had taken part in the discussion for the points which they had raised. He quite agreed with Mr. Leech that the paper was mainly bibliographical rather than statistical, but he thought he need make no apology for that. Indeed had it been otherwise Mr. Leech would probably have been deprived of the opportunity of showing his statistics! Mr. Leech's next remark had been to state the same thing that the President had just suggested, that the skeletal Class II cases of malocclusion were not the result of thumb-sucking, but personally he had been careful not to mention that. If he had gone a little further he would have quoted such people as Humphries and Leyton, who suggested that they had found a number of thumb-suckers amongst the Class II cases which they had investigated, and Johnstone, who had suggested that thumb-sucking might prevent Class III cases. He was not at all sure about that himself and therefore he had kept it out of his paper. The point of bottle- and breast-feeding had also arisen and he had been interested to note that 30 of the cases shown by Mr. Leech were breast-fed and only 5 bottle-fed. That was extremely interesting because one or two people had suggested that probably the bottle-feeding was responsible for the malocclusion. It was also notable that in the figures as to when the feeding stopped, the largest group consisted of those who were allowed to feed until 9 months. It had also been suggested by one or two people that the longer the child kept sucking the more likely he was to have a sucking reflex, and when that stopped he was likely to substitute the thumb. On the other hand there were some workers dealing with a group of children breast-fed, bottle-fed, and cup-fed, and it was interesting that in their statistics they found there was a higher percentage of thumb-suckers among the breast-fed children than among the bottle-fed and higher among the bottle-fed than among the cup-fed children.

Mr. Munro said he agreed with Mr. Leech that probably it had no influence upon the growth of the jaws. An interesting point which he had hoped someone would make some comment on was the alteration in the form of the palate.

Mr. Walpole Day had raised the matter of aetiological factors and he thought he had dealt with that in the paper but probably he had not gone into it at large. With regard to the "civilized races" he was not in a position to say very much about them at all! Mr. Day had also spoken about feeding faults and had mentioned the four-hourly feeding and the American alternatives to that: in this country we had the two different feeding times—four hours and three hours—and usually the feeding times were assessed from the requirements of the child very early on. His own view was that feeding faults were extremely important and that was why he had mentioned that something could be done about the malocclusion, particularly if attention was paid to feeding faults, and one could go on for quite a long time on that point alone. He had previously suggested that feeding faults were obvious in quantity, quality, and method of feeding, and it had been found that the quality of the feed could be just as variable in breast-fed as in bottle-fed children. In the bottle-fed child it was possible to experiment with it and eventually to get the required quality. With the breast-fed child it was not so easy to adjust it, and in fact in many of the cases which he had had under observation it had been found that the children began sucking the thumb at about three months of age. At this time their mother was short of milk and had found it necessary to change the feeding of the child from the breast to the bottle because the child was not getting sufficient feed or the right quality, and hence those two things seemed to be associated.

Mr. Campbell had suggested the co-operation of the family doctor and the pædiatrician in helping to prevent the thumb-sucking habit. He hoped he had previously made the point clear that he personally would like to see a little more co-operation. In general the medical students were taught that the habit was unimportant and that the child should just be left to suck his thumb and that he would ultimately grow out of it. It was perfectly correct that in many cases the children did grow out of it, but it was those cases which did not stop before four years of age that the orthodontist was particularly interested in, and if it were possible to prevent the sucking habit in such cases it would reduce the incidence of malocclusion.

With regard to methods of prevention, undoubtedly one such method was an investigation of the feeding method as well as the quantity and quality. Many mothers were very careless about the feeding methods which they used and considered that they could do something else as well as feed their baby. Not infrequently they carried on a conversation with other people in the room if the child was being bottle-fed, and his own view was that such a habit was to be discouraged. If the child could be fed in private it was far better, where everything was quiet and the child could then concentrate on his sucking.

With regard to the method which Mr. Campbell suggested was used in Australia, namely that of wrapping the child up, strangely enough that did not appear to be encouraged in this country as far as he could find out. He had children himself, and Professor Hallett had mentioned his, and none of them had sucked their thumb and those children had always been wrapped up well, but whether that was of any importance he was unable to say. Admittedly he had come across cases where the child had been well wrapped up during sleeping periods but had developed the habit of sucking the thumb, and it certainly might be a factor which was worth considering.

Mr. Breakspear had then asked whether the palatal abnormalities could not be attributed to some other cause, and he hoped when presenting the paper he had not suggested that the sucking of the thumb was the only way by which one could get abnormalities in the palate. It would be far from his real idea of things if he had let them think for a single moment that the thumb-sucking was the only cause of palatal abnormalities, because it was not.

Mr. Kettle had mentioned the dummy or comforter, and that was a matter which must always come up in a discussion on thumb-sucking—the pros and cons of sucking a dummy instead of sucking the thumb. Personally he would agree with it if it was observed that the child had a tendency to suck the thumb, and if there was no other way of stopping the child then he might be given a comforter because it seemed that the malocclusion resulting from sucking the comforter was less than that resulting from sucking the thumb and therefore it should be used instead of the thumb. Also it was possible to remove the dummy or to try and discourage the use of

it much more easily than trying to discourage the use of the thumb.

Mr. Gray had stressed the point of not scolding the child and he agreed that was very important. His own experience was that the children who sucked their thumbs were usually very intelligent but as a rule their morale had been considerably reduced by all the scolding which they had had in the past, and probably the whippings, too, and therefore the first thing he did was to try and boost their morale, and he found that was very successful. He also suggested to the parents as politely as he could that they should leave the matter to him as the case was now between the child and himself. Like Mr. Gray he had inserted an appliance and overnight the sucking habit had stopped on many occasions; Mr. Gray suggested 90 per cent of the cases and probably he was correct, but there were the other cases where that just did not happen and one had to go a little further.

Mr. Munro said he had expected Mr. Littlefield to contribute something to the discussion because he knew of his great interest in the subject, and he agreed with him that probably the basis of the majority of cases was the disharmony between the child and his environment. That could occur in very many ways such as the method of feeding, and another important factor in the disharmony was the surroundings of the child—the family life, and so on, which was very important.

Professor Hallett had elaborated a little on one or two of the points and had given his opinion on them. He considered it an undignified act, and that was the usual sort of attitude to it. Certainly it was more than undignified—it was unhygienic. That was probably one of the big factors to be considered in the matter—the undignified act as Professor Hallett called it—because social customs were responsible for that attitude. In many ways it was no more undignified than some of the other habits that the child might indulge in. The psychologist differed from the orthodontist on his attitude to this point. The psychologist said it was no more important than other habits which could be just as socially wrong as thumb-sucking. The fact was, as far as the orthodontist was concerned, that malocclusion seemed to be present and thumb-sucking was a factor in the consideration of malocclusion in very many cases. He agreed with Professor Hallett in regard to his casual attitude regarding the cases: the child should never be made to feel embarrassed when speaking to the orthodontist because the latter might be the only real friend the child had and such relationships should be retained. That was the only way in which one could succeed with such cases.

Mr. Richards had then mentioned the point that orthodontic problems were present as well as the habit of thumb-sucking in the cases where malocclusion was produced. It was true that one did get malocclusion of the arches and a whole lot of factors present, but there were also many cases where there seemed to be no other cause of producing the malocclusion than the thumb-sucking.

A point arising from the Chairman's remarks was the use of the Andresen appliance. That was certainly one of the appliances that could be used, and he understood that one of the first occasions upon which Andresen had used the method was in order to treat the thumb-sucking in his own two- or three-year-old daughter.

The Chairman said Mr. Munro's remarks about habits of feeding had reminded him of one occasion in India upon which he saw a woman on a station platform feeding her rather elderly child, both of them at the same time smoking cigarettes!

A vote of thanks to Mr. Munro for his paper and his reply to the discussion, proposed by the Chairman, was accorded with acclamation, and the Session then terminated.

Effect of Certain Factors upon Toothbrush Bristle Stiffness

A machine was constructed consisting of a car running on a steel track propelled by a weight passing over a pulley, the car carrying a brush whose bristle tips would just contact a horizontal bar.

Assessment of bristle stiffness was then made according to the weight required to pull the brush beneath the bar. It was found that the inherent stiffness of both nylon and natural bristle was reduced by exposure to moisture. Immersion for periods of only one second produced appreciable loss of stiffness. Both materials tended to regain stiffness with drying, but nylon recovered more rapidly. Some evidence was produced to show that the loss in bristle stiffness is due to sorption of water rather than a lubrication. Brushes, both natural and nylon, stored in a desiccator, regained much of their original stiffness in 6 hours, and showed complete recovery in 24 hours, whereas those stored in a humidifier actually became softer after 6 hours' storage. It is therefore concluded that for practical purposes brushes should not be stored in a closed container.

Brushes were used on a mechanical brushing machine with a load of 230 g. for a period of 50 minutes' brushing in tap water, being then removed, placed in a desiccator for 24 hours, the stiffness measured, run for a further 50 minutes, again dried for 24 hours, and remeasured. The deterioration of the natural bristle brushes after this treatment was so great that it was not possible to evaluate their stiffness by the test method, but in the case of the nylon brushes measurements were readily made and some loss in stiffness was noted, thus confirming the clinical studies of Wade (1953).—Swartz, M. L., Phillips, R. W., and Hine, M. K. (1956), *J. Periodont.*, **27**, 96.

A CASE OF MEDIASTINITIS FOLLOWING DENTAL INFECTION

By **K. W. LEE**, B.D.S.(Malaya)
Department of Dentistry, University of Malaya

CASE REPORT

THE patient, a 36-year-old Chinese male, was seen at the Dental Clinic, General Hospital, Singapore, on Sept. 12, 1955. He complained of substernal pain, dyspnœa, and a swelling of the lower part of the neck. He gave a history of pain in the lower left molar region 15 days previously. This was followed by trismus and swelling, which commenced at the angle of the left mandible and spread to the neck and chest. There was also a swelling in the floor of the mouth which had "burst", with a discharge of blood and pus.

Fig. 1.—X-ray, postero-anterior view, showing diffuse radiolucent area associated with $\overline{8}$.

ON EXAMINATION.—The patient was thin and emaciated. He appeared very toxic, and had difficulty in speech and respiration. The temperature was 98·4° F. There was a diffuse acute inflammatory swelling of the lower part of the neck which was fluctuant just above the suprasternal notch. Movements of the neck were limited. The left submandibular lymph-nodes were enlarged, palpable, and tender. Trismus was marked, the maximum intermaxillary opening possible being only $\frac{1}{2}$ in. Intra-orally, $\overline{8}$ was badly carious, but the remaining left mandibular posterior teeth appeared to be sound. The floor of the mouth was only slightly raised and a sinus was present lingual to $\overline{34}$, from which exuded a purulent discharge. $\overline{21|12}$ were crowned, and a fixed bridge spanned from $3|$ to $|3$.

INVESTIGATIONS.—Blood: R.B.C. 4·63m, Hb 94 per cent (13·82 g.), W.B.C. 5700; polymorphs 75, lymphocytes 22, mononuclears 1, eosinophils 2 per cent.

Radiographic examination showed a diffuse radiolucent area around the apices of $\overline{8}$ (*Fig.* 1).

A diagnosis of mediastinitis following Ludwig's angina due to $\overline{8}$ was made, and the patient was admitted to the Surgical Unit of the Hospital.

TREATMENT.—The patient was prepared for an emergency operation and, under endotracheal anæsthesia, a midline incision was made over the suprasternal notch. A large abscess cavity was found in the root of the neck extending downwards behind the manubrium into the anterior mediastinum. The cavity contained a lot of necrotic, blackish, very foul-smelling matter. No tracheal or œsophageal fistula was found. A rubber drain and gauze pack were inserted. The patient was placed on intravenous achromycin 250 mg. 6-hourly, and an intravenous glucose-saline drip was maintained. Pain was controlled by Inj. Pethidine 100 mg. p.r.n.

The drain and gauze pack were removed after 48 hours. The patient improved gradually, the intravenous drip was withdrawn, and the administration of achromycin was changed to an oral route. The trismus had reduced sufficiently by Sept. 20 to permit extraction of the causative tooth and $\overline{8}$ was extracted under inferior dental block anæsthesia. Post-operative healing was uneventful and the sinus in the floor of the mouth gradually closed. Achromycin was withdrawn after Sept. 25 and the patient was discharged.

Comment.—Mediastinitis is a rare complication of acute dental infection which has spread unchecked along the visceral fascial planes of the neck. The infection which began in the $\overline{8}$ region had developed into a Ludwig's angina, and extended in front of the pretracheal fascia, through the superior and into the anterior mediastinum. It presents a problem which necessitates close medical-dental liaison and it is fortunate that with the advent of the antibiotic era, and an improvement in the general standard of dental health, such a complication is rare. The prognosis has been considerably improved, and even in this case, which presented an asthenic condition, the patient escaped death through timely surgical intervention and the use of antibiotics.

Acknowledgements.—My thanks are due to Professor G. S. Yeoh, Professor of Surgery, and Professor R. J. S. Tickle, Professor of Dental Surgery, for permission to publish the case; and to Dr. N. K. Yong, of the Department of Surgery, University of Malaya, who was in charge of the case.

BRITISH SOCIETY OF PERIODONTOLOGY

ANNUAL CLINICAL MEETING, 1956

TABLE DEMONSTRATIONS

TWO CASES OF SPONTANEOUS REGRESSION OF EPANUTIN HYPERPLASIA

By E. W. BRADFORD, Ph.D., M.D.S.
Dental School, University of St. Andrews

Case records and photographs were shown of the effect on this hyperplasia of the withdrawal of epanutin, and its substitution by mysoline for the control of the epilepsy.

In the first case, a girl aged 17, the control of the epilepsy by epanutin had been of only three months' duration. Gingival enlargement had been present for six weeks, affecting the whole mouth, and was increasing rapidly. The hyperplasia was not typical at this stage in that it appeared somewhat œdematous and bled easily during examination. In that the hyperplasia had developed rapidly this might be considered as an acute lesion. The withdrawal of the epanutin led to a complete recession in a matter of weeks.

The second case was also a juvenile, a boy aged 10½, in the mixed dentition stage. In this instance the lesion could be considered as chronic, having been present for over twelve months, and presented the typical picture of epanutin hyperplasia. The withdrawal of the epanutin and its substitution by mysoline was not followed by a complete return to normal of the gingiva. There was considerable regression, but after three months the fibrous hyperplasia of the gingiva of the deciduous teeth could still be identified even though the teeth concerned had been extracted.

PIGMENTATION OF THE GINGIVÆ

By F. E. HOPPER, B.D.S., F.D.S. R.C.S.
Sutherland Dental School, Newcastle upon Tyne

The demonstration consisted of a number of slides showing common examples of pigmentation found in the gingivæ.

Bismuth Pigmentation (*Fig.* 1).—This example of bismuth pigmentation was seen in a patient who had received a course of bismuth injections as antisyphilitic therapy. The pigmentation was bluish-black in colour and extensively distributed throughout the gingivæ, especially in those areas where oral hygiene was poor and deposits of calculus heavy. The bismuth circulating in the blood is presumably reduced to bismuth sulphide by the sulphuretted hydrogen produced in areas of chronic inflammation. The black pigmentation is cellular and limited to the immediate subepithelium area.

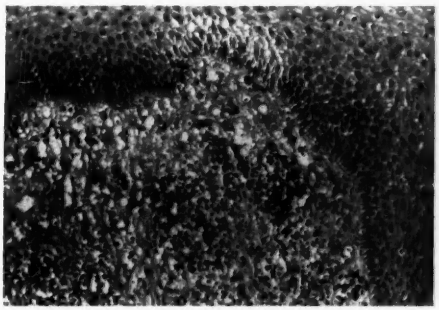


Fig. 1.—*Bismuth pigmentation.* This section shows dark particles of bismuth sulphide scattered irregularly in the subepithelial layer. (× 60.)

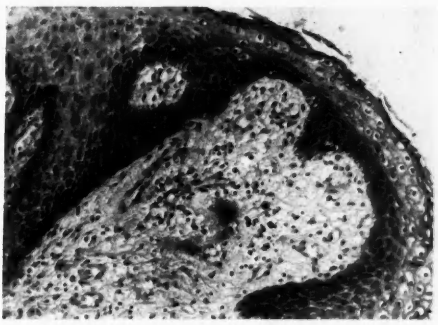


Fig. 2.—*Lead pigmentation.* This section shows scattered particles of dark coloured lead sulphide in the subepithelial layers. (× 60.)

Lead Pigmentation (*Fig.* 2).—This example of lead pigmentation shows a bluish-black

line around the gingival margin. The section shows thinly scattered granules of lead sulphide in the immediate subepithelial layers but the amount of inflammation is minimal.

Carbon Pigmentation (*Fig.* 3).—This patient, who was a coal-miner by occupation, had at some time received a small injury to his oral

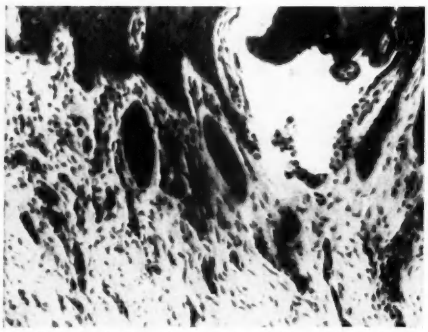


Fig. 3.—*Carbon pigmentation.* This section shows particles of carbon (coal dust) which have been embedded beneath the surface of the mucous membrane as a result of injury. (× 60.)

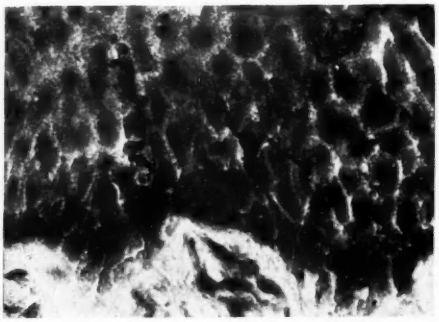


Fig. 4.—*Melanin pigmentation.* This section shows an epidermal melanoblast with branching dendrites within the prickle-cell layer of the epithelium of the mucous membrane. (× 240.)

mucosa while working in an atmosphere filled with coal dust. The particles of coal which were ingrained in the healing wound remained below the epithelium and have not produced any noticeable inflammatory reaction. The bluish mark which is produced by this embedded carbon is very commonly seen in the skin of the underground colliery worker and is known as "miner's medal".

Melanin Pigmentation (*Fig.* 4).—Pigmentation of the oral mucosa by melanin deposits is commonly seen in coloured races and in animals. The melanin is found in the epithelium and is concentrated in cells of the basal layer. In the prickle-cell layer are numbers of large cells with branching dendrites which are full of melanin granules and appear to carry the melanin to terminal plates which lie on the prickle cells. The example shown is from the gingival mucosa of a cat.

SPLINT PROSTHESES

By **MURIEL P. MICHAELIS,**
L.D.S. R.C.S. (Eng.), D.D.S. (Penn.)
*London, W.*1

Models of cases were shown to demonstrate various designs of splint prostheses. Some were being worn by patients after gingivectomy as periodontal splints. Others were being worn in lieu of partial dentures of the more orthodox designs in order to prevent periodontal troubles. All the cases shown had been made in gold except one, which was a bite-raising lower splint made in chrome-cobalt metal. The demonstrator pointed out that all the designs could be made in chrome-cobalt if desired.

LONG-TERM RESULTS OF TREATMENT

By **A. FRANK STAMMERS, M.D.S.**
Birmingham, 19

A number of coloured transparencies were shown illustrating the progress of treatment of several cases and the appearance of the mouth after five to twenty years.

Case 1.—Female, aged 22. Local aetiological factors—overcrowding of incisors, open-lips habit, right-handed brushing, and faulty oral hygiene. Additional factor introduced during treatment—loss of contact $\underline{|23}$.

Treatment.—Whole mouth gingivectomy—extraction $\underline{4|4}$ and $\underline{|4}$ to relieve crowding—orthodontic appliance to retract $\underline{3|3}$—lip exercises—instruction in correct oral hygiene. Slides showing progress over period of *ten years* were shown, including appearance of gingivæ during two pregnancies. Present condition—perfectly healthy.

Points of Interest.—Excellent result of orthodontic movement in adult following removal of all toxic absorption from pockets. Danger, and difficulty of treatment, of loss of contact points. Mouth perfectly healthy at commencement of first pregnancy and remained healthy throughout.

Neglect and calculus $\frac{21|12}{}$ before second pregnancy resulting in gingivitis gravidarum $\frac{21|12}{}$.

Case 2.—Female, aged 19. Very marked labial inclination of $\frac{21|12}{}$ and deep pocketing. Causative factors—finger biting and thumb sucking till aged 10, subsequent open-lips habit and neglect.

Treatment.—Gingivectomy, lip exercises, correct oral hygiene. Slides showed progress over five years to date.

Points of Interest.—Following removal of all toxic absorption from pockets the retraction of upper incisors into perfect alinement by muscular action of lips only. Healing of alveolar bone, recalcification shown on X-rays.

Case 3.—Female, aged 15. Open-lips habit associated with a short upper lip. Gingival hyperplasia and marked "tension line".

Treatment.—Lip exercises, gingivectomy. Five years later open-lips habit seen to be under control and gingivæ healthy.

Case 4.—Male, aged 43. Epileptic—epanutin therapy. Marked epanutin hyperplasia associated with left-handed brushing and overclosure of bite.

Treatment.—Gingivectomy followed by X-ray therapy—correct brushing technique—bite-raising appliance. Slides showed progress during four years—two appliances, both in and out of mouth. Present condition very healthy with no regrowth of papillæ.

Case 5.—Female, aged 18. Grossly neglected mouth—marked inflammatory hyperplasia of gingivæ with ulceration of papillæ in $\frac{321|123}{}$ region. X-rays show $\frac{21|12}{}$ have very short roots in relation to large crowns.

Treatment.—Whole mouth gingivectomy—instructions in home treatment—bite equilibration. Sixteen months later mouth seen to be very healthy and X-rays show healed alveolar bone.

Four years and six months later patient returned from abroad—now married with three children—mouth neglected, some molar teeth lost—bite closed and $\frac{21|12}{}$ traumatized by excessive occlusal stress. Mandibular teeth and bone quite healthy, but great resorption of bone around $\frac{21|12}{}$ necessitating loss of these teeth.

Points of Interest.—Great importance of maintaining vertical dimension and preventing traumatic bite on teeth with short roots.

Case 6.—Female, aged 41. Good results seen six years after treatment, which included extraction of $\overline{|1}$ and movement of $\overline{1|}$ by spring appliance into line to collapse lower arch and correct traumatism of $\frac{1|1}{}$ and $\overline{1|1}$.

Six further cases showed the healthy appearance, 11, 12, 13, 14, 16, and 20 years respectively after treatment. The age of these patients ranged between 39 and 67 years.

INSTRUMENTS AND TECHNIQUE FOR REMOVAL OF SUBGINGIVAL CALCULUS

By JENS WAERHAUG, Ph.D.,
Institute of Dental Research, Oslo, Norway

Dr. Waerhaug demonstrated many of the points discussed in his paper which was published together with A. Arno and A. Lovdal in the *Journal of Periodontology* (1954), **25**, 281.

CASES OF CLINICAL INTEREST

MANDIBULAR OVERCLOSURE WITH TRAUMATIC LOWER ANTERIOR GINGIVITIS

By W. G. CROSS, M.S., M.B., B.D.S.

*Department of Periodontology, Institute of Dental Surgery, London, W.C.*1

Male, aged 43 years.

COMPLAINT.—Soreness of lower gingivæ.

A B

Fig. 1.—A, Before bite-raising; B, After bite-raising.

Referred for: Closed bite, traumatizing the lower incisors (*Fig.* 1).

DENTAL HISTORY.—Nil relevant. Regular dental care.

CLINICAL FINDINGS.—In profile, the patient presented an overclosed appearance. Chronic

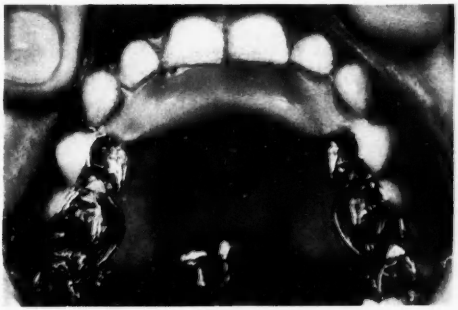


Fig. 2.—Chrome-cobalt/acrylic bite-raising splint in position.

marginal gingivitis with some inflammatory enlargement $\overline{21|12}$ region. Upper incisors meet lower labial gingivæ. 8 mm. free-way space.

TREATMENT.—

1. Temporary acrylic bite-raising appliance, inserted Aug. 11, 1955.

2. Permanent chrome-cobalt bite-raising appliance inserted Oct. 28, 1955. (*Fig.* 2.)

Comment.—This appliance prevents trauma to lower gingivæ and restores occlusion to correct height. At the time of presentation it had been worn six months.

TRAUMATIC OCCLUSION
(Class III Occlusion)

By **W. G. CROSS**, M.S., M.B., B.D.S.

*Department of Periodontology, Institute of Dental Surgery, London, W.C.*1

Female, aged 36 years.

COMPLAINT.—Looseness of $\overline{|1}$.

Referred for: Traumatic occlusion (Class III relationship) which had already led to loss of $\overline{|1}$.

CLINICAL FINDINGS.—Class III relationship, with forward displacement of $\underline{1|}$, overeruption

A B

Fig. 3.—A, Before orthodontic treatment. B, After orthodontic treatment.

of $\underline{76|}$. Gingival recession $\overline{|1}$ buccally. Traumatic occlusion in centric: $\frac{|12}{12}$. Mobility: Grade I, $\overline{2|2}$; Grade II, $\overline{|1}$.

TREATMENT.—Treatment was carried out between April 1, 1955, and Feb. 3, 1956, and consisted of curettage, selective grinding, orthodontic treatment by removable appliances to retract mandibular teeth and proclinate $\underline{32|123}$, followed by insertion of a chrome-cobalt splint to immobilize $\overline{2|12}$ and replace $\overline{1|}$. (*Fig.* 3, splint not shown.)

Comment.—This case is one of about forty which have required orthodontic treatment as part of the periodontal treatment plan. In the majority of cases, including this one, the orthodontic treatment has been carried out by the Orthodontic Department, Eastman Dental Hospital.

Note: *Orthodontic treatment lasted five months only.*

CHRONIC LOCALIZED PERIODONTITIS

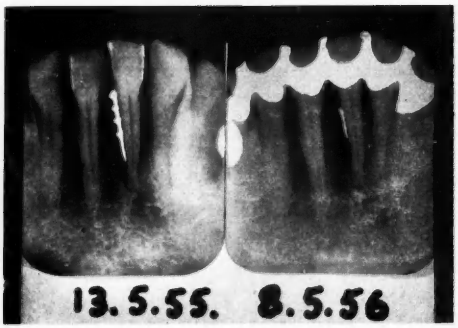
By **W. G. CROSS**, M.S., M.B., B.D.S.

*Department of Periodontology, Institute of Dental Surgery, London, W.C.*1

Female, aged 34 years.

COMPLAINT.—Looseness of $\overline{|1}$ for some months. Tendency to wake with clenched teeth.

Referred for: Treatment of periodontal abscess $\overline{|1}$. Dentist queries suitability for bone-graft.



A B

Fig. 4.—A, Before bone-graft—pocket 10 mm. from gingival margin. B, Ten months after bone-graft—pocket 4 mm. from gingival margin.

DENTAL HISTORY.—About 2 years ago extraction $\underline{2|}$, probably on account of periodontal disease. Two weeks ago $\overline{|1}$, which had been loose for some months, started to throb. Treated by dentist with pressure packs and grinding of $\overline{|1}$.

CLINICAL FINDINGS.—Fistula buccally $\overline{|1}$. Subacute inflammation of gingiva buccally $\overline{|1}$. Pus can be expressed from mesial aspect of

this tooth. Mobility: Grade I, $\underline{3}|$; Grade II, $|\underline{6}$. Gingival recession buccally $\underline{|1|1}$ 2 mm. See X-rays mesial pocket 10 mm. $|\underline{1}$.

TREATMENT.—

June 3, 1955: Preliminary curettage.

June 24: Bone-graft $|\underline{1}$ local analgesia, penicillin cover.

July 1: Sutures removed, splint inserted.

Oct. 12: Further curettage.

Feb. 27, 1956: $|\underline{1}$ Grade I mobility now, symptom-free. Mesial pocket 4 mm.; no treatment of this proposed.

March 16: Improved splint inserted.

Comment.—One of a series of cases for which bone-grafting has been carried out for intrabony pockets. Duration 10 months. (*Fig.* 4.)

REATTACHMENT FOLLOWING CURETTAGE: A HISTOLOGICAL STUDY

By **W. G. CROSS**, M.S., M.B., B.D.S.

*Department of Periodontology, Institute of Dental Surgery, London, W.C.*1

Histological evidence of both epithelial and connective-tissue attachment following curettage in an "unfavourable" case was presented. An account of this work was published in the DENTAL PRACTITIONER in October.

SUBACUTE ULCERATIVE GINGIVITIS WITH DEEP CRATER FORMATION IN $\overline{3|3}$ REGION

By **I. YUKTANANDANA**, D.D.S.

*Department of Periodontology, Institute of Dental Surgery, London, W.C.*1

Male, aged 23 years.

COMPLAINT.—Soreness of gingivæ, bleeding, and bad breath.

DENTAL HISTORY.—Had an attack of acute ulcerative gingivitis two years ago whilst in the army; was treated by penicillin injections and has had intermittent attacks since. Treatment consisted of penicillin lozenges and mouthwashes. Patient arrived just after completion of course of lozenges.

CLINICAL FINDINGS (*Fig.* 5).—Inflammation of marginal gingiva. Destruction of interdental papillæ with crater formation, small ulcerations present. Bled on touch, characteristic smell.

Fig. 5.—Before gingivoplasty—interdental crater formation.

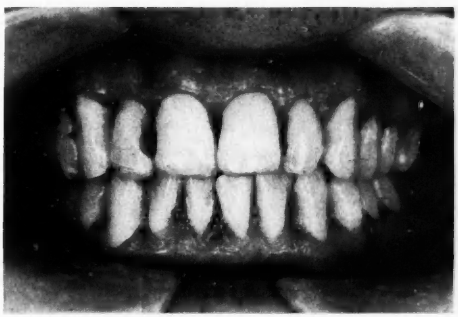


Fig. 6.—After gingivoplasty. Note normal gingival contour and stippling.

TREATMENT.—Started Jan. 25, 1956.

1. Penicillin chewing gum.
2. Oral hygiene instruction.
3. Gingivoplasty (lower right), Jan. 26. (*Fig.* 6.)

Feb. 29: Mild attack of ulcerative gingivitis, craters formed all over the mouth, including the lower right quadrant.

4. Gingivoplasty of the remaining quadrants.

Comment.—The main cause of the recurrent attacks is probably faulty brushing technique and crater formation. The patient's home care is not very good.

CHRONIC PERIODONTITIS WITH CHRONIC PERIODONTAL ABSCESS DISTAL TO $\overline{7}|$

By **I. YUKTANANDANA, D.D.S.**

Department of Periodontology, Institute of Dental Surgery, London, W.C.1

Male, aged 27 years.

DENTAL HISTORY.—The patient was referred with a history of cervical adenitis due to gingivitis. The condition was cleared with penicillin injections and H_2O_2 mouthwashes.

Fig. 7.—Before treatment—marked gingival detachment labially around lower incisors.

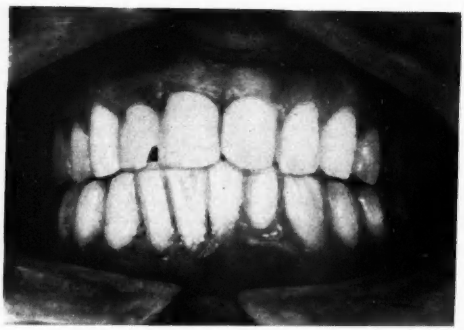


Fig. 8.—After treatment. Gingivectomy R, curettage L. Where gingival detachment is present, curettage alone is inadequate: gingivectomy subsequently carried out on L.

CLINICAL FINDINGS.—Inflammation of gingivæ, gingival detachment in lower anterior region and deep pocket formation. Chronic periodontal abscess $\overline{7}|$. $\overline{7}|$ exhibits Grade III mobility.

TREATMENT.—

1. Subgingival curettage and oral hygiene instruction.
2. Gingivectomy.
3. Extraction of $\overline{7}|$. (*Figs.* 7, 8.)

Comment.—This case demonstrated the difference in appearance following both subgingival curettage and gingivectomy on the attached gingivæ. The patient's oral care has not been carried out properly.

Both Dr. Cross and Dr. Yuktanandana wish to express their thanks to the staff of the Photographic Department, Institute of Dental Surgery, for the photographs which illustrate their cases.

ALVEOLAR EXOSTOSES

By **G. G. McCLURE, H.D.D.**

Registrar, Central Middlesex Hospital, London, N.W.10. Previously Registrar, Department of Periodontology, Eastman Dental Hospital, where this case was treated.

R., a baker and confectioner aged 45, attended the hospital for the first time in November, 1954, referred by his dental surgeon with a provisional diagnosis of exostoses. The patient had been unaware of any abnormality.

ON EXAMINATION.—

There was considerable calculus, a moderate degree of marginal periodontitis with little tooth mobility, and bony swellings on the buccal aspect of $\underline{8\text{–}4}|$ and $|\underline{4\text{–}8}$. The diagnosis of multiple exostoses was confirmed. No other abnormality was found.

It was decided to eliminate the pockets present, but in order to achieve physiological contour subsequently, it was necessary to remove the exostoses. This was carried out by a flap operation with incision in the gingival sulcus of $\underline{8\text{–}4}|$ and $|\underline{4\text{–}8}$ and a vertical incision at the anterior ends. The bony swelling was found to be pedunculated and it was attached to the alveolar process. It was removed with Rongeur forceps and bone rasps. The contour was restored to normal. The gingival margin was trimmed with scissors and sutured into place. Healing was uneventful.

A chrome-cobalt upper partial denture was inserted which also acted as a periodontal splint.

PATHOLOGICAL REPORT.—

Macroscopical: Three hard masses, surface of smooth cortical bone measuring approximately $7 \times 4 \times 3$ mm.

Microscopical: The specimen consisted of cortical and cancellous bone with cancellous spaces containing hæmopoietic bone-marrow.

Eighteen months later there was no tendency to recurrence and the gingival condition was excellent.

This case illustrated an unusual aspect of bone contouring to achieve satisfactory gingival contour.

My thanks are due to Mr. J. A. D. Cameron for referring the patient to me and to him and Mr. W. A. Lawson for co-operating with the treatment.

FILM

An interesting film entitled "Gingivectomy" presented by Adrian Cowan, M.B., F.D.S. R.C.S., Dublin, brought the meeting to a successful end.

COURSE

A postgraduate course sponsored by the British Society of Periodontology and given by Dr. Jens Waerhaug, Ph.D., of Oslo, at the Eastman Dental Hospital on May 3 and 4, 1956, was attended by thirty-two members and guests.

LETTER TO THE EDITOR

October 19, 1956.

Sir,

The Report of the Committee on Recruitment to the Dental Profession will be welcomed by many concerned with dental education and practice as a valuable contribution towards the solution of a problem of great public importance.

It is, however, regrettable that a little more space was not devoted in the report to the various steps taken to raise dentistry from a trade to a profession in the nineteenth century. Undue compression is probably responsible for statements (Appendix VIII, page 60) that are misleading if not quite contrary to fact.

Without minimizing in any way the enormous influence exerted by Sir John Tomes, it would be unjust and historically quite untrue to neglect the contributions of his colleagues. Among the most prominent of these were Sir Edwin Saunders, W. A. Harrison, and T. A. Rogers, all of whom played quite as great a part as Tomes in the foundation and management of the Odontological Society and the Dental Hospital of London. Saunders in particular must be regarded as the "Father" of the Dental Hospital of London, and in the sphere of professional organization and educational work his importance is not less than that of Tomes.

The Dental Hospital of London (now the Royal Dental Hospital, *not* the National Dental Hospital) owed its foundation in 1858 to the Odontological Society, one of the original aims of which was to establish a dental hospital and *school*. The Dental Hospital of London opened on Dec. 1, 1858, and the London School of Dental Surgery on Oct. 1, 1859.

The National Dental Hospital and School (now University College Hospital Dental School) was not opened until Nov. 11, 1861. It arose out of the Metropolitan School of Dental Science (founded Oct. 5, 1859), which was in turn the protégé of the short-lived College of Dentists in England (founded Feb. 14, 1857). The College of Dentists in England represented one of the two rival groups working towards dental reform in the middle of the nineteenth century, the other being the Odontological Society. In 1863, the College of Dentists, lacking sustained support, amalgamated with the Odontological Society.

If any institution can be regarded as the true precursor of the Dental Hospital of London it is the London Institution for Diseases of the Teeth, founded by Edwin Saunders, W. A. Harrison, and James Snell in 1840. The history of this Institution is obscure, but it lasted for about twelve years and there is definite evidence that it received pupils (*The Forceps*, July 27, 1844, p. 149). A London Dental Dispensary, established in Clarence Gardens, Regent's Park, in 1855, by Charles James Fox, did good work for some years but there is no evidence that it served in any way as a teaching centre.

There is no doubt whatever that the first dental *hospital* (as distinct from small and short-lived dispensaries) was the Dental Hospital of London, and that the first dental *school* with a regular curriculum, and full facilities for clinical instruction was the London School of Dental Surgery. These two institutions are now represented by the Royal Dental Hospital and School of Dental Surgery (University of London), the hospital being one of the constituent hospitals of the St. George's Hospital Board and the school being a school of the University of London.

One other point which I might mention here: in Appendix III of the Report, the number of students shown as qualifying in the year 1953–4 from the Royal Dental Hospital is given as "Nil", whereas in fact the number was 62, comprising 61 L.D.S. of whom 15 also graduated B.D.S. and 1 B.D.S. These figures of degrees and diplomas are available in the Returns of the University Grants Committee.

Yours faithfully,

C. BOWDLER HENRY
Chairman, School Council

The Royal Dental Hospital of London,
School of Dental Surgery,
32, Leicester Square,
London, W.C.2.

GENERAL DENTAL COUNCIL

President's Address at the Opening of the First Session, September 26, 1956

MEMBERS OF THE COUNCIL,

This is the first plenary session of the new General Dental Council—plenary, that is, in as much as we have assembled with our officers already appointed. It is therefore the first occasion on which I have had the opportunity of expressing formally for myself and for my colleagues in office our appreciation of the honour you have conferred upon us and our determination to do everything in our power to achieve the purposes for which the Council was created. I would like to add that it gives me great reassurance and pleasure in undertaking my own task to find that there are 9 of the other 12 members of the old Board on the new Council—and no less encouraging and pleasant is it to know that we still have an opportunity to draw upon the wisdom and experience of the General Medical Council through an increased and even still more representative delegation. I am more than satisfied that, built up from this foundation, the new membership of the Council ensures that we shall be most adequately informed on all those matters which come within our purview.

I hope, however, that you will permit me to pay a tribute to the members of the Board who are not among our number. Arthur Condry fell seriously ill earlier this year and, although I am glad to say that he has made an excellent recovery, this misfortune undoubtedly affected his candidature in the elections to the Council. Mr. Condry was a member of the Board for thirteen years and the knowledge of the working of the dental benefit scheme which he had acquired during his long service as Secretary of the Incorporated Dental Society, coupled with his profound understanding of the real problems and fears of the practitioner in the General Dental Service, were of particular value to the Board in many aspects of their work and especially in matters of discipline. Those of us who are concerned with the disciplinary work of this Council will sadly miss both his special experience and the shrewd opinion with which he constantly enlightened our deliberations on the Board. All his many friends amongst us will regret the absence of his warm companionship and kindly, cheerful presence.

We who were on the Board will also miss another friend, Sir Sydney Smith, who, we may feel certain, would still have been with us if he had not disfranchised himself by retiring from the General Medical Council. First appointed by the Council in 1941, Sir Sydney not only brought the breadth of his wisdom and experience to enrich the Board's study of educational matters, but gave shrewd and realistic advice in the ordering of their finances. He was among the chief architects of the excellent relations which always existed between the Board and their more mature sister body. From his experience as Professor of Medical Jurisprudence at Edinburgh University and later as Rector, his advice in disciplinary matters was of constant value. No one who knows him will fail to appreciate the importance of his contribution both to the Board's deliberations and to the influential, if sometimes undervalued, social side of their sessions. He had a pretty wit and always contrived to enliven our proceedings.

Mr. Roffey was a member of the Board for little more than a year, but this was time enough for a body which had good reason to expect much from the Minister's nominee to realize that in qualities of mind, judgement and personality he was no whit behind his distinguished predecessors. His term of office, though short, will prove to have been of inestimable benefit to this Council, since he was on the Board and kept in constant touch with us during the passage of the 1955 Bill through Parliament and the preparations for these first meetings of the Council. It is an understatement to say that we miss him and are sorry that he is no longer with us.

We as a profession have now had two or three months to get used to the responsibility of being self-governing. In the course of thirty-five years we have passed through the stage where our statutory body was so constituted that the dentists were in a minority of one and their Chairman was a layman appointed by, and from among the members of, the Privy Council. We gradually gained experience until we were permitted to have one of our own colleagues as Chairman of our statutory body and the numerical balance was thereby reversed. During these years the student output of the dental schools increased to a remarkable degree, due in no small measure to the profession's own efforts applied through the Dental Board, and now Parliament has judged us to have become so much better co-ordinated, so much better disciplined, so far instructed by precept and enlightened by example that we ourselves have at last been charged with the responsibility of holding the Scales of Justice.

Similarly in our previous estate we had very little direct responsibility for the education of our profession except in an advisory capacity to the General Medical Council, but this tutelage also proved to be a means of advancement to the stature of full responsibility with which we are now invested.

I would like to repeat something said in my last address to the Board in order to ensure that within the compass of the Presidential Addresses of this new Council due recognition is made of the debt we owe to our friends and neighbours, the General Medical Council, for the disinterested and sympathetic manner in which they have discharged their responsibilities towards dentistry for nearly eighty years. It was upon their pattern that the disciplinary procedure of the Board was modelled and under their guidance we received our apprenticeship. We now have to adopt new methods of conducting our disciplinary cases just as they had to a few years ago, and like them we shall have to find our own way. In future we shall be in a position to require witnesses to attend *subpœna* and we shall take their evidence on oath, but the same criteria of good conduct will be adopted, the same precedents will hold as those established by the Dental Board and we shall find our way more clearly by the exercise of our new powers. It is in every way satisfactory, and perhaps a measure of the influence which the Board has had in the development of a corporate sense of responsibility in the profession, that the average number of disciplinary cases heard each year declined steadily throughout their existence from twenty-four to eleven; while the average number of erasures recommended dwindled from five to two. It has become evident that the members of our profession exhibit increasingly an appropriate sense of

personal responsibility for the welfare of their patients which obliges them to act honourably and that the great majority are in the habit of weighing their actions before the supreme court of their own conscience. We have just taken a significant step in the evolution of our profession and we must not lose sight of the fact that the early decisions of this Council on both policy and procedure are of incalculable importance in determining the speed with which we shall gain our objectives and the position we shall secure in the public esteem. We must not be satisfied until people have come to place the same confidence in the ability, scholarship, understanding, and self-sacrifice of any practitioner in the Dentists' Register as they repose in the members of any of the great liberal and learned professions. A professional man is expected to serve the interests of his client consistently and without regard to his own interests, and to do this not under any form of compulsion, but as a matter of conscience. This ideal may not always be realized, but over the years the standard of conduct in any of the professions worthy to bear that name has reached a high level and is constantly being raised.

In each profession this steady development of professional ethics has been accompanied by a corresponding increase in the confidence and respect of the public and in the freedoms and privileges accorded to the members of it. These functions and privileges do not originate in some prescriptive right or immutable law. They are not necessarily accorded to one profession because they have been accorded to others. They derive from the existence among the community of a belief that the public interest is best served by allowing the professional man freedom to treat his patients or clients according to his conscience, free control over entry into his profession and the right to expel from it anyone who fails to measure up to the ethical standards accepted by his colleagues. It is for this reason that the members of a recognized profession are permitted to enjoy high social standing and to exercise great influence over the lives of other people.

The new Act gives us this control over entry to our profession and the right to expel. The rest we still have to some extent to earn for ourselves, but the preamble to the Act gives us some useful advice in shaping our course. It charges us "to promote high standards of professional education and professional conduct among dentists". That is a precept that I know we shall bear in mind and one which will doubtless often be rehearsed. It may indeed be said to constitute our charter.

If, however, we are to have confidence in our moral right to expel from our profession any whose standards are a disgrace to it, we must ensure that those who are admitted have been properly instructed in both the practice and the ethics of their profession. There are two ways in which we can do this, two ways, that is, in which education becomes the concern of the Council. The first, the right to appoint visitors to the qualifying examinations held by the Dental Authorities, is time-honoured and inherited from the General Medical Council. It has now been extended and coupled with the right to appoint persons to visit places where instruction is given to dental students under the direction of any of the Dental Authorities.

As to whether or when the Council should appoint visitors we shall be advised by our Education Committee, but the assumption in both the Act of 1878 and that of 1956 is that the Council will take this, amongst other steps, to satisfy themselves as to the sufficiency of the instruction given and the standard of the examinations. Visitation is in turn likely to lead to the publication and periodic revision of a list of Recommendations concerning the courses of study and examinations, so that the Dental Authorities may know what standard the Council expect. On all these matters we shall no doubt in due course be advised by the Committee, and we are fortunate that on this Council we have no less than twelve out of the fourteen members of the Committee who advised the General Medical Council at the last revision of the Recommendations.

There is, however, a second way in which we have the opportunity to concern ourselves with dental education and that is by devoting what are called our "Surplus Funds" to purposes connected with education. Perhaps the most valuable of the services rendered by the Dental Board directly to the profession and the public were those which they performed in the allocation of their surplus funds. The Dentists Act of 1921 gave effect to the desire expressed by the profession to contribute towards its own expansion and development by requiring the Board to apply these funds to dental education and research and other public purposes connected with the profession of dentistry. The story of the use which the Board made of this power has been told more than once, although it remains little known in the profession—and more is the pity, for this recommendation, made between 1917 and 1919 to the Acland Committee by both the British Dental Association and the Incorporated Dental Society, was one which not only did them credit for generosity and statesmanship but succeeded in raising the standard of dental education in the space of one generation as no other measure could have done. It was an earnest of good faith which any profession might be proud to have given.

During this session we shall have an opportunity of considering recommendations from our committees on our future policy in these fields. You have already agreed that we should be failing in our duty to the profession and to the public if we wasted the legacy we have inherited from the Dental Board. Nevertheless, since our expenditure on other matters must necessarily be considerably greater than that of our predecessors, you may think that we should hesitate to extend the range of these activities at least until we have had more time to examine the scope and cost of our statutory commitments.

It would clearly seem to be appropriate at this point for me to refer to the considerable increase in the retention fee which the Council, having before them the recommendations of the Dental Board, felt would be necessary and which the Privy Council have now approved. Since the last war the Dental Board had continued to hold the retention fee at an average figure of little more than that of the fee charged between the wars. It has now become necessary to revert to a higher fee; not as high as it was during the first few years after the establishment of the Dental Board, but some 12·5 per cent higher than it was between 1937 and 1939. This necessity has arisen for two basic reasons; one, the increased size of the Council and the other, the depreciation in the value of money. The second reason, of course, works both ways and the cost to each dentist in real value will be considerably less than half his pre-war contribution. However, much of the increase is, as I say, due to the purely mechanical factor of having to defray the cost of bringing together a greater number of members to our meetings, and this, together with the

cost of discharging the additional functions of the Council, accounts for 65 per cent of the difference between the old fee and the new one. A further 15·8 per cent of the increase is due to the rising cost of the non-statutory functions of the Council—for example, to the growing demand for and cost of dental health education material which, looked at from another angle, is nevertheless an encouraging sign of progress. Then a margin amounting to 12·5 per cent of the increase was allowed for contingencies such as higher printing costs and the additional staff that would be needed as the Council's business gets under way. I may say that the whole of the amount allotted to this item has already been allocated, as both the Dental Board and the Council had expected it would be. The remaining 6·7 per cent of the increase has been added because it is necessary in fixing the retention fee to look ahead over a period of several years and, as most members of the profession know, there will certainly be a drop in the number of dentists paying the retention fee for the next five years at least. This practical reminder that we are facing a serious shortage of dental manpower will no doubt give rise to reflections other than those of a financial nature.

I have digressed from the subject of dental education, but before I leave it altogether I ought to refer to the duty laid upon us by Parliament to decide whether or not any particular person who possesses a degree or diploma granted in the Commonwealth or in a foreign country should be admitted to the register without first obtaining a registrable qualification granted in the United Kingdom. For this purpose they have provided that in case of doubt we shall arrange for such people to take examinations in order to test their fitness to be registered. You will know that Parliament were particularly concerned with a small number of political refugees, many of whom have had no opportunity of practising for many years. Our very difficult task is to preserve a balance between our sympathy with these refugees and our duty to the public to admit to the register only those who evince a standard of knowledge and skill which renders them fit to practise dentistry—a standard which we exact, as we are legally bound to do, from our own students. The matter is further complicated by the fact that these "statutory examinations" as we may call them will in future become the portal of entry to the register for all Commonwealth and foreign applicants whose diplomas have not been awarded general recognition.

The most widely-discussed of the new duties laid upon the Council by Parliament, however, is that of making arrangements for setting up classes of ancillary dental workers. The first part of the undertaking is no longer particularly controversial, I think. Many dentists would welcome the assistance of a trained hygienist, who, under their direction and supervision, could carry out scaling and polishing and leave them free to carry out more intricate, or ought I to say more interesting, work. There are already in existence a number of these girls who have been trained by the Ministry of Health or by the Armed Forces of the Crown, and we shall be advised to make regulations which will enable them to work in private practice as well as in the public health services. The controversial part of the new proposal is the experiment in training auxiliary workers to fill teeth and extract deciduous teeth. Discussion within the profession seems to have centred upon two aspects of the matter: will it raise or lower our status, and will it work? Let us examine these questions. The duty of our profession to the public is to treat the ravages of dental disease and to seek methods of prevention. If the assistance of these auxiliary dental workers will enable us to perform this task more efficiently and completely we shall rise in the estimation of our fellow countrymen. The overriding question, therefore, is whether in the event they will help us to provide more conservative dentistry and thus prove of value to the community, and this question is one to which no one, so far as I know, can give a certain answer. It is for that reason that Parliament has conditionally prescribed an experiment to test the matter; and it is because of the many problems related to the experiment that the Privy Council are charged by Parliament to determine, after consulting this Council, whether in the public interest the experiment should be carried out. It is therefore our duty to collect all the relevant information we can so that when consulted we shall be in a position to advise on the feasibility, the incidental complications and the means of conducting the experiment in such a manner and on such a scale that, while it does not materially interfere with the training of dentists, the value to the community of this class of auxiliary dental worker may be judged.

These, and all other matters connected with ancillary dental services, we are required by the new Act to refer to our Ancillary Dental Workers Committee. The Committee has therefore a grave responsibility to discharge and I am pleased to be able to report that the Ministers concerned have now appointed, as the three non-members of the Council who are to be members of the Committee from its inception, Mr. John Vivian Bingay, Mrs. Isabel Graham-Bryce, and Mr. Robert Pearson Neilson. The Committee will greatly benefit from the very wide experience of different aspects of health administration which these experts will bring to their deliberations.

There is a further matter on which there seems to be some misunderstanding. I refer to certain activities of the Board which the Council have inherited but which are largely carried out by the Registrar and our legal advisers; that is, the duty of the Board, now of the Council, to prosecute those who practise dentistry without being registered. Evidence of this type of offence is often very difficult to obtain, since those who have received treatment are almost always loath to give evidence in public and frequently slow to appreciate the need to prosecute. Conversely, complaints of unregistered practice are often made on the barest suspicion or rumour and the use of inquiry agents is a costly expedient. Nevertheless, the Board had inquiries made into every case brought to their notice in which there was the smallest ground for supposing that any real evidence of illegal practice might be brought to light. Here again, as might be expected, the extent of the Board's activity did decline from the days in which unregistered practice was at least as common as practice by registered dentists. The average number of prosecutions each year since the war has been eleven. The Council would no doubt wish to be informed from time to time of these proceedings.

Now we have before us a programme which may prove to be fuller than we can conveniently deal with in the time at our disposal at this session. We are, however, to assemble again in November and I think that by the end of this year we shall be schooled in our duties and ready to discharge efficiently all the responsibilities that have been laid upon us.

THE EARL OF CHESTERFIELD AND THE TEETH

By J. MENZIES CAMPBELL, D.D.S., F.D.S., F.R.S.E.

Hon. Member, American Academy of the History of Dentistry, and La Société Française de l'Histoire de l'Art Dentaire

PHILIP DORMER STANHOPE (1694–1773), fourth Earl of Chesterfield, was a brilliantly erudite figure of the eighteenth century. While at the University of Cambridge, where he was sent at the age of eighteen, he stated, "When I talked my best, I quoted Horace; when I aimed at being facetious, I quoted Martial; and when I had a mind to be a fine gentleman, I talked Ovid."

Even as a young man, he displayed wit and a wide knowledge of the world. Later, as a diplomat, his reputation was outstanding.

Chesterfield's son, to whom he was devoted, was born in 1732 (d. 1768). His father's ardent desire was that he should become proficient in the classics and worldly wisdom. Although he succeeded in those, the same could not be said of *the Graces*, which his father so highly prized.

The Earl wrote innumerable letters to his son urging him to rectify such defects. In his correspondence, he "dispensed" sound advice, hoping thus to impress upon him that certain factors were basically necessary for high diplomatic appointments, to which he aspired.

Of particular interest, however, to members of the dental profession are excerpts from seven of these letters, wherein the Earl emphasized the outstanding importance of oral hygiene. They were written in the mid-eighteenth century, when, as every student of dental history is well aware, the value of sound teeth was not widely appreciated.

July 30, 1747: "Do you take care to keep your teeth very clean, by washing them constantly every morning, and after every meal? This is very necessary, both to preserve your teeth a great while, and to save you a great deal of pain. Mine have plagued me long, and are now falling out, merely for want of care, when I was your age."

November 24, 1747: "I have added, by way of a New-Year's gift, a very pretty tooth-pick case; and, by the way, pray take great care of your teeth, and keep them extremely clean."

July 6, 1748: "I hope you take great care to keep your whole person, particularly your mouth, very clean; common decency requires it; besides that, great cleanliness is very conducive to health. But if you do not keep your mouth excessively clean, by washing it carefully every morning, and after every meal, it will not only be apt to smell, which is very disgusting and indecent, but your teeth will decay and ache, which is both a great loss and a great pain."

May 15, 1749: "Pray send for the best operator for the teeth at Turin, where I suppose there is some famous one, and let him put yours in perfect order, and then take great care to keep them so afterwards yourself. You had very good teeth, and I hope that they are so still; but even those who have bad ones should keep them clean, for a dirty mouth is, in my mind, ill manners; in short, neglect nothing that can possibly please."

July 6, 1749: "A particular attention to the cleanliness of your mouth, teeth, hands and nails is but common decency, in order not to offend people's eyes and noses."

May 6, 1751: "I hope you take infinite care of your teeth: the consequences of neglecting the mouth are serious, not only to one's self, but to others."

February 15, 1754: "I do hope you take great care of your mouth and teeth, and that you clean them well every morning with a sponge dipped in tepid water, with a few drops of arquebasade water dropped into it, besides washing your mouth after every meal. I do insist upon your never using those sticks or any hard substance whatsoever, which always rub away the gums and destroy the varnish

of the teeth. I speak thus from woeful experience; for my negligence of my teeth, when I was younger than you are, made them bad; and afterwards my desire to have them look better made me use sticks, irons etc., which totally destroyed them; so that I have not now above six or seven left. I lost one this morning, which suggested this advice to you."

BOOK REVIEW

THE MANAGEMENT OF ORAL DISEASE. A Treatise on the Recognition, Identification, and Treatment of Diseases of the Oral Regions. By JOSEPH L. BERNIER, D.D.S., M.S., F.D.S. R.C.S. (Eng.), Colonel, Dental Corps, U.S. Army; Chief, Oral Pathology Branch, Armed Forces Institute of Pathology; etc. $9\frac{3}{4} \times 6\frac{5}{8}$ in. Pp. 825, with 1001 illustrations and 5 coloured plates. 1955. London: Henry Kimpton. 110s.

THE title of this new book implies a novelty of approach and the author, in his preface, justifies the choice of the word "Management" as indicating an emphasis on patient care, but unfortunately this object is not borne out in the text. The majority of treatment paragraphs at the end of sections are sketchy and in many cases are reduced to an abrupt sentence or two. Admittedly, Ludwig's angina is now rare, but it is still a serious condition and merits more than "Drainage is imperative even though it may be difficult to achieve. Penicillin, aureomycin, and terramycin are all of value". Surely an emphasis on patient care should have made some reference to the management of the threat of respiratory obstruction. Turning to the more prevalent condition of Vincent's gingivitis, very little guidance is given beyond suggestions for the choice of antibiotic therapy. No mention is made of any measures directed towards the prevention of recurrence which is surely the major problem in the management of a case of Vincent's gingivitis. On black hairy tongue, there is no paragraph on treatment although the management of this condition surely involves more than its clinical and histological recognition.

The classification used in Chapter 3 on Anomalies of Teeth is difficult to understand, perhaps owing to the use of the word "dysplasia" for both qualitative and quantitative variations. No useful purpose is served in classifying a diminutive third molar as a dysplasia when there is no abnormality in the tissues but only in the size of the fully formed tooth. In the same connexion hereditary amelogenesis imperfecta is included under the hyperplasias, while in the text the condition is described as either an agenesis or hypoplasia of enamel. This may be a major editorial error which has escaped notice, but the presence of mistakes of this calibre do not inspire confidence in a text.

The following chapter is on the pathology of dental caries and consists of 8 pages of text, 14 figures, and 7 pages of workshop reports reproduced verbatim. The references which follow extend to 13 pages of small type.

Degenerations of the pulp are dealt with briefly and realistically although fibrosis and reticular atrophy are not generally accepted as synonymous terms.

A commendable feature of the book is the inclusion of a chapter on "Tumour-like proliferations" and under this heading should be gathered those lesions which in the past have been mistakenly regarded as true neoplasms. It is strange therefore to find that peripheral giant-cell reparative granuloma is omitted from this chapter but is included later with the fibroma "so that their relationship to these latter reactions may be considered". Amyloidosis would have been better omitted from this proliferative group, and it is difficult to see the purpose of including congenital malformations such as cleft tongue and aglossia in the same chapter.

Most of the second half of the book deals with cysts and tumours of the jaws and is both well illustrated and detailed in the text. The illustrations throughout are of the high standard we associate with American productions

and the five colour plates are of excellent quality.

Figs. 42 and 307 are two different blocks from the same original which purports to show Hutchinson's incisors, but Hutchinson would not have identified them as luetic even though they may well be notched incisors in a patient known to be a congenital syphilitic.

Perusal of the lists of references reveals an isolationist trend which is reflected in surprising omissions in the text to the work of many non-American authorities. The reference to Magitot (p. 71) gives a completely irrelevant paper and in fact perpetuates the mistake of the author of another text-book.

This book is impressive to handle, pleasant to browse in, but unconvincing to read. As a text-book of oral pathology for the undergraduate in this country it cannot be taken very seriously, since it does not appear to have been written for readers on this side of the Atlantic. J. A. P.

ABSTRACTS FROM OTHER JOURNALS

Effect of Mastication on Digestion of Food

Weighed portions of masticated and unmasticated food were sewn into separated cotton-mesh bags, the bags tied together to ensure identical treatment, and then swallowed. The residues recovered from the fæces were weighed and examined. Each bag contained a ball-bearing so that its passage could be checked radiographically. A dose of Normacol was taken at least eight hours after swallowing the bags to aid peristalsis and thus speed their passage. Each experimental subject's masticatory efficiency was assessed by Manly and Braley's method, which was slightly modified. The experiments showed that mastication greatly increases the digestibility of certain foodstuffs, and that a subject with a masticatory efficiency as low as 23 per cent, i.e., incisors only, is able to masticate quite adequately though this does not mean that he would necessarily normally do so.—FARRELL, J. H. (1956), *Brit. dent. J.*, **100**, 149.

Construction of an Autopolymerized Acrylic Jacket Crown by Direct Technique

The advantages of this technique are that it can be completed at one sitting, it will resist breaking because of its elastic qualities, and handled properly will produce an æsthetic and relatively permanent restoration.

Fibreglass is incorporated in thread form to increase the strength. Because of the tendency of self-polymerizing acrylics to discolour, a plastic tooth is hollowed out for use as a veneer. The resin is added by brush to the wound fibreglass in instalments to offset the marked setting contraction.—COLLETT, H. A., and MCGRATH, E. B. (1955), *J. Amer. dent. Ass.*, **50**, 160.

A Method of Measuring the Adhesive Characteristics of Dental Cement

Adhesion is discussed. The materials tested were zinc phosphate cement and resin cements. There is no specific test for adhesion, but in this investigation a workable accurate laboratory method was devised. This consisted of placing a cement film between gold and dentine surfaces. A micrometer was included in the set-up to standardize the film thickness. Components were made to hold the cemented dentine and gold pieces whilst they were subjected to a tensile test in a Tintius Olsen machine.

Results: After 1 hour storage in air the resin showed adhesion six times as great as zinc phosphate. Identical results were obtained after 1 hour in 100 per cent humidity. Adhesion of both materials was much reduced after 1 hour in tap water. After 16 hours' storage all zinc phosphate specimens broke before testing. The resin-cemented specimens showed a marked drop in strength when stored for 16 hours in 100 per cent humidity and tap water.

Conclusion: Resin cements showed greater adhesive characteristics than zinc phosphate when a prepared dry dentine surface was used. Moisture was deleterious to both. The authors admit weaknesses in this test and state that

it is difficult to attach clinical significance to these results.—SWARTZ, M. L., and PHILLIPS, R. W. (1955), *J. Amer. Dent. Ass.*, **50**, 172.

Effects of Smoking on the Oral Mucosa

Hyperkeratosis of the oral mucosa, in one form or another, is the usual sequela of excessive smoking. The pathologic changes depend (1) on the susceptibility of the individual, and (2) on the amount of tobacco used. Smoking provides both mechanical and chemical stimuli.

The epithelial changes occurring in the mouth can be classified as follows: (1) Hyperplasia; (2) Hyperkeratosis; (3) Leucoplakia; (4) Dyskeratosis; (5) Early epidermoid carcinoma. The microscopical examination of the lesion is the only way of arriving at a correct diagnosis. The lesion can appear simple and still may be precancerous or cancerous. If a person is susceptible to keratosis, excessive smoking should be avoided.—A. BUDNER LEWIS (1955), *Oral Surg.*, **8**, 1026.

SOCIETY NOTES

SIXTY-THIRD DENTAL CONGRESS OF PARIS

The "Semaine Odontologique Internationale", the Sixty-third Dental Congress of Paris, will be held in Paris from April 11–17, 1957.

The "Semaine Odontologique Internationale" is organized by the National Confederation of Dental Syndicates of France and, for the first time, in 1957 organization of the Scientific Congress which adopts the name of "Congrès Dentaire de Paris" (Dental Congress of Paris), will be entrusted to the "Association des Chirurgiens-Dentistes Indépendants" (Association of Independent Dental Surgeons) and to the "Société de Chirurgie dentaire et de Stomatologie de Paris".

For all information, please apply to:—

Maurice Vincent, Secrétaire Général de la "Semaine Odontologique Internationale", 31, rue Tronchet, Paris 8e.

BRITISH SOCIETY OF PERIODONTOLOGY
Undergraduate Prize

An annual prize of £15 is offered by the British Society of Periodontology for an essay by an undergraduate dental student (who has not obtained a registerable dental qualification at the date of submission of his entry) in a Dental School in Great Britain.

The subject for the first essay, which should not exceed 4000 words, is "The Removal of Subgingival Deposits and its Importance".

A special committee of the Society will judge the essays, which must be received by the honorary secretary before March 31, 1957. In future years the title will be announced during October.

THE INSTITUTE OF BRITISH SURGICAL TECHNICIANS (INC.)

The following lectures will be given under the auspices of the Dental Section of the Institute of British Surgical Technicians:—

"Dental Materials and Heat", by Mr. F. G. Shaw, F.I.B.S.T., on Tuesday, Nov. 20, 1956, at 6.30 p.m., in the West Hall, Royal Society of Medicine, Wimpole Street, W.1. Admission by ticket.

"Metals in Dentistry", by Mr. J. F. C. Morden, B.Sc., F.I.M. (Lecturer in Metallurgy, College of Technology, Birmingham) on Thursday, Nov. 22, 1956, at 7.30 p.m., in the Lecture Theatre, General Hospital, Steelhouse Lane, Birmingham 4. Admission by ticket from Mr. H. J. Harcourt, 8, Hillside Road, Erdington, Birmingham, 23.

"The Dental Technician and Jaw Injuries", by Dr. I. H. Heslop, M.B., B.S., B.D.S., F.D.S. R.C.S., on Friday, Nov. 23, 1956, at 7.30 p.m., at the Turner Dental School, Bridgeford Street, Manchester 15. Admission by ticket from Mr. W. Stanley, 247 Firbank Road, Wythenshawe, Manchester.

BIRMINGHAM COLLEGE OF TECHNOLOGY
Courses in Dental Technology

The distribution of prizes and certificates to successful students of the courses in Dental Technology will be held at the College of Technology, Gosta Green, Birmingham 4, on Tuesday, Dec. 11, 1956, at 7 p.m., and will be followed by a lecture delivered by H. Earl Heighway, L.D.S., B.D.S., entitled "Designing a Bridge". The meeting will be open to all members of the Dental Profession and their friends.

The chair will be taken by the Principal of the College, Dr. P. F. R. Venables, and a selection of students' work will be displayed.